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# **MINISTRY OF IRRIGATION AND POWER**

## **REPORT OF THE KRISHNA-GODAVARI COMMISSION**



**Annexure XI**

**Particulars of Proposed Irrigation and Hydro-electric Schemes**

**KRISHNA RIVER SYSTEM**

**July 1962**

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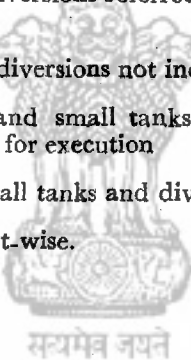
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## FOREWORD

The data presented in this Annexure relate to proposed Irrigation and Hydro-electric schemes on the Krishna river system and are based on the information obtained from the State Governments of Andhra Pradesh, Madras, Maharashtra and Mysore supplemented, here and there, by information collected from project reports and official correspondence between the State Governments and the Planning Commission or the Ministry of Irrigation and Power.

This Annexure gives particulars of all schemes that have been referred to in III Five Year Plan, but have not yet been approved for execution and of all other schemes which are contemplated by the State Governments.





**statement showing proposed installed power, annual irrigation and annual diversion**

<i>State</i>	<i>Number of schemes</i>	<i>Proposed power installed (kW.)</i>	<i>C.C.A. or Ayacut (acres)</i>	<i>Proposed annual irrigation (acres)</i>	<i>Proposed annual diversion (T.M.C.)</i>
<i>Category of schemes</i>					
<i>1.</i>	<i>2.</i>	<i>3.</i>	<i>4.</i>	<i>5.</i>	<i>6.</i>
<b>ANDHRA PRADESH</b>			<i>Ayacut</i>		
Major and medium schemes	22	1,340,000	4,113,500	5,952,500	1,239.7
Minor schemes	70	—	78,738	80,738	} 18.8
Small tanks and diversions	361	—	31,505	31,505	
<b>Total</b>	<b>453</b>	<b>1,340,000</b>	<b>4,223,743</b>	<b>6,064,743</b>	<b>1,258.5</b>
<b>MADRAS</b>					
Major and medium schemes	1	—	1,183,000	1,783,000	206.3
<b>MAHARASHTRA</b>			<i>C.C.A.</i>		
Major and medium schemes	34	1,831,100	2,307,400	2,388,700	501.1
Minor schemes	7	—	10,703	7,409	} 49.0
Small tanks and diversions	2,205	—	881,080	756,945	
<b>Total</b>	<b>2,246</b>	<b>1,831,100</b>	<b>3,199,183</b>	<b>3,153,054</b>	<b>550.1</b>
<b>MYSORE</b>			<i>Ayacut</i>		
Major and medium schemes	25	—	3,780,100	3,785,200	573.9
Minor schemes	15	—	37,645	37,645	} 188.6
Small tanks and diversions	N.A.	—	1,282,355	1,282,355	
<b>Total</b>	<b>„</b>	<b>—</b>	<b>5,100,100</b>	<b>5,105,200</b>	<b>762.5</b>
Total of major and medium Schemes	81	3,171,100	11,384,000	13,893,000	2,521.0
Total of minor schemes	92	—	127,086	125,792	} 256.4
Total of small tanks and diversions	N.A.	—	2,194,940	2,070,805	
<b>Grand Total</b>	<b>N.A.</b>	<b>3,171,100</b>	<b>13,706,026</b>	<b>16,105,997</b>	<b>2,777.4</b>

## INTRODUCTION

1.1 After a preliminary study of the nature and extent of irrigation developments, existing and proposed, in the Krishna and Godavari basins and after general discussions with the representatives of the State Governments concerned, the Commission decided to classify all schemes and projects into the following four groups :

- (i) Major schemes to include all power projects and such other schemes as would each irrigate 50,000 acres or more annually ;
- (ii) Medium schemes—each intended to irrigate less than 50,000 acres annually but having an Ayacut or C.C.A. of not less than 5,000 acres ;
- (iii) Minor schemes—each having an Ayacut or C.C.A. of less than 5,000 acres but not less than 500 acres ; and
- (iv) Small tanks and diversions—each having an Ayacut or C.C.A. of less than 50 acres.

1.2 A form was drawn to show in detail such particulars of schemes and projects as were relevant to the Commission's work and the State Governments were requested to furnish the requisite data for each major and medium scheme proposed on the Krishna river system. This form with explanatory notes is shown in Section 2. It was, however, found that information sought by the Commission was not readily available with the State Governments ; each State, therefore, set out to collect as much information as could be compiled in the time available.

Particulars of each major and medium project, as obtained from the State Governments, are given in Section 3. These were shown in draft form first to the representatives of the State Governments concerned, for verification. After appropriate modifications had been made, the revised drafts were discussed in a joint meeting at which the Commission had the benefit of comments made and views expressed by the representatives of other States. This led to some further changes, which have all been incorporated in Section 3.

1.3 The significance of the index numbers, as given to each project in Section 3, is the same as explained in the Commission's report.

1.4 Important particulars of all major and medium schemes arranged State-wise are given in Tables I and II. These include the proposed power generation, annual irrigation and annual diversion by each scheme.

1.5 Since each minor scheme diverts but a small quantity of water, since the number of such schemes is relatively large and since most of the particulars specified for the major and medium projects were not available for the minor schemes, the Commission decided to request the State Governments to furnish only a few important facts regarding each minor scheme. These have been presented in Tables III and IV.

1.6 As regards small tanks and diversions, even the particulars called for the minor schemes were not available for individual small tanks and diversions. It was, therefore, decided to collect some particulars regarding these small tanks and diversions, not by individual works, but collectively for all the small tanks and diversions in each district. Even this information was not wholly available. The information obtained is shown in Tables V and VI.

1.7 An abstract of all information available regarding minor schemes and small tanks and diversions is shown in Tables VII and VIII. These tables give the number of total schemes of this kind, district-wise, the areas proposed to be irrigated and the proposed annual diversion. The Commission have attempted to fill in the gaps in the data; the figures assumed are shown in brackets and suitable notes have been added to indicate the basis on which the assumptions have been made.

No records are available of the quantum of river supplies to be diverted by minor schemes or by small tanks and diversions. In order to get some idea of this quantum, the information contained in Table IX was collected from each State Government and was utilised in working out the annual diversions shown in Tables VII and VIII.

1.8 The total number of schemes in each State, the total area proposed to be irrigated, the total river supply proposed to be diverted and the total installed power capacity are shown in a statement in the beginning of the Annexure.

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**Name of scheme or system****Index Number**

Indicating serial number,  
category of project, sub-basin  
and State or States

**1. Name of State**

State or States benefitted by the scheme; if the scheme was in different state prior to re-organisation of States, also the name of that State.

**2. Scope of the scheme or system**

Irrigation, hydro-electric or multi-purpose; if multi-purpose, all purposes are stated; whether based on flow or flow cum-storage;

For irrigation schemes, acreage of C. C. A. or Ayacut is given;

For hydro-electric schemes, installed power in k.W. is stated

**3. Source of supply**

Name of channel with name of place where diversion works are located, tributary and the river.

Illustration : Sina at Sholapur/Bhima/Krishna

Upstream uses if any, existing and proposed

**4. Description of the reservoir or tank**

Live storage; dead storage; carry-over; annual reservoir losses; filling period; depletion period; catchment area; area submerged; full reservoir level; minimum pond level or dead storage level.

If no canal takes off from the reservoir or tank :

Type, length and height of dam; length and capacity of spillway; and number and capacity of outlets.

**5. Description of the headworks**

If a canal takes off above the dam:

Type, length and height of dam; length and capacity of spillway; number and capacity of outlets including particulars of head regulator of the canal.

If the head works consist of a weir, anicut or barrage :

Length of weir, anicut or barrage with discharging capacity ; particulars of under-sluices and of head regulator of canal; minimum pond level; catchment area upstream of headworks.

**6. Description of the canal (s)**

Name of canal (contour or ridge); whether taking off on right or left; length of main canal (and of branches); one seasonal, two seasonal or perennial; lined or unlined; authorised capacity at head.

- ✓ (a) Nature of investigations carried out up-to-date  
 (b) Actual or probable date of beginning of construction  
 8. Probable date of beginning of operation

### IRRIGATION ASPECTS

#### 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

- (i) In general, separate tables are prepared for each major canal;  
 (ii) Ayacut figures are not given for schemes in Madhya Pradesh and Maharashtra.

Item	Names of districts				Total
	.....thousand acres.....				

G. C. A.

C. C. A.

Ayacut

#### 10. Area proposed to be irrigated annually and intensity of irrigation

Intensity of irrigation is worked out as percentage of area irrigated in each season (*khariif, rabi, abi, tabi, hot-weather etc.*) on total C. C. A. in case of Madhya Pradesh and Maharashtra and on total Ayacut in case of Andhra Pradesh, Mysore and Orissa;

Area proposed to be irrigated	Intensity of irrigation
-------------------------------	-------------------------

- (i) Perennial  
 (ii) Two seasonal  
 (iii) *Khariif*  
 (iv) *Rabi*  
 (v) Hot weather  
 (vi) Total

#### 11. Normal rainfall and river supply proposed to be diverted

- (i) If there is more than one canal, separate tables are prepared for each major canal;  
 (ii) figures for column 2 are read from monthly Isohytel maps ;  
 (iii) figures in column 3 and 4 are based on the sum-total of the rainfall figures for the month for all the stations in the commanded area divided by the number of stations;

(iv) figures in column 6 represent

average cusecs proposed to be diverted during the month  
authorised capacity of the canal

(v) figures in columns 2 to 4 are correct to first place of decimal and those in columns 5 and 6 to two places of decimal

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
1	2	3	4	5	6
	.....inches .....			-----T.M.C. ....	

June

July

—

April.

May

**Total**

12. (a) Depth of sub-soil water table below ground level in the area proposed to be irrigated  
 (b) Nature and extent of fluctuation in the water table  
 (c) Has any study been made of the likely effect of the introduction of irrigation on sub-soil water-table ?

Information is given only where data based on regular observations are available

13. (a) Characteristics of soil (s) in the commanded area

Results of scientific soil survey if carried out are given, otherwise general classification specifying soil texture with depth of soil crust

- (b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

Information is given only where scientific studies have been made

14. Existing pattern of cultivation in the area proposed to be irrigated

- (i) Paddy, wheat, sugar-cane and cotton are specified individually ; any other crop which covers more than 5 percent of the total cropped area is also specified, all other crops are grouped under 'others' ;  
 (ii) crop percentages are worked out on the 'Total cropped area' as given in the last column, and are correct to the first place of decimal

<i>Perennial</i>		<i>Two seasonal</i>				<i>Total cropped area (T. acres)</i>
<i>Percentage of principal crops</i>	<i>Total area (T.acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T.acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T.acres)</i>	

#### 15. Proposed pattern of irrigated cultivation

- (i) Paddy, wheat, sugar-cane and cotton are specified individually ; any other crop which covers more than 5 percent of the total cropped area is also specified, all other crops are grouped under 'others' ;
- (ii) crop percentages are worked out on the 'Grand Total' as given in the last column and are correct to the first place of decimal.

<i>Perennial</i>		<i>Two seasonal</i>				<i>Grand Total (T. acres)</i>
<i>Percentage of principal crops</i>	<i>Total area (T.acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T.acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T.acres)</i>	

(b) Are there any rules for regulating crop pattern ?

#### 16. Duty and Delta at canal head (as anticipated)

Overall delta represents

area proposed to be irrigated annually vide item 10

total annual river supply proposed to be diverted vide item 11

<i>Duty (acres per mean cusec)</i>			<i>Delta (feet)</i>			
<i>Perennial</i>	<i>Kharif</i>	<i>Rabi</i>	<i>Perennial</i>	<i>Kharif</i>	<i>Rabi</i>	<i>Overall</i>

17. (a) **Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

It is specified whether area irrigated by tanks is included in or excluded from the C.C.A. or Ayacut of the project

- (b) **Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

It is specified whether the area irrigated by wells is included in or excluded from the C.C.A. or Ayacut of the project

**18. Quantum of river supplies available in relation to withdrawals**

Whether river supply data available and whether supplies are adequate to meet irrigation requirements

**POWER ASPECTS**

**19. River supply proposed to be diverted and operation head**

<i>Month</i>	<i>Range of operation head (feet)</i>	<i>Supply (average) passing through turbines (cusecs)</i>
June		
July		
—		
—		
April		
May		
Total		

T.M.C.

**20. Proposed disposal of tail-race waters**

<i>Month</i>	<i>Particulars</i>
June	
July	
—	
—	
April	
May	

**21. Quantum of river supplies available in relation to withdrawals**

Whether river supply data available and whether adequate supplies are to meet power requirement



Aspects such as navigation, water supply for towns, supplies given for industrial uses are specified

Class of land (agricultural, forest or waste) that would be submerged ; if the area lies outside the State, to what extent and in what State

## 25. Financial return of the scheme

**26. Cost per acre irrigated**

## 28. Main features and purpose of the scheme

This item is included only if there are very special features not covered by items 1-28 above



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**Section 3**  
**Particulars of major and medium Projects**  
**(ii) not included in III Plan**

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**SRISAILAM HYDRO-ELECTRIC SCHEME****10. 2-K. 7-A. 1****1. Name of State** Andhra Pradesh (formerly in Madras)**2. Scope of the scheme or system**

Power, three units 110,000 k.W. each

**3. Source of supply**Krishna at Srisailam,  
Considerable uses upstream**4. Description of the reservoir or tank**

Live storage	---	150.0 T. M. C.
Dead storage	...	158.0 "
Carry-over	...	Nil
Annual reservoir losses	...	23.0 T. M. C.
Filling period	...	July to Oct.
Depletion period	...	Nov. to June
Catchment area	...	79,530 square miles
Area submerged	...	149,760 acres
Full reservoir level	...	R. L. 885
Minimum pond level	...	R. L. 854

**5. Description of the headworks**

Dam : masonry, 1,685 feet long, 397 feet high  
 Spillway : 11 vents of 66 feet x 50 feet, total capacity 1,075,000 cusecs  
 Outlets : 18 river sluices and 7 penstocks 22 feet diameter each

**6.** Not applicable**7. (a) Nature of investigations carried out up-to-date** Project report ready**(b) Actual or probable date of beginning of construction** 1962**8. Probable date of beginning of operation** 1967**IRRIGATION ASPECTS****9. Gross commanded area, culturable commanded area and Ayacut, district-wise**

Same as under Krishna Delta System (1A-K. 7-A. 1) and  
 Nagarjunasagar Project (1C. 1-K. 7-A. 1)

# 10. Area proposed to be irrigated annually and intensity of irrigation

The following additions are proposed in the area irrigated under Krishna Delta System and Nagarjunasagar Left Canal.

	<i>Nagarjunasagar Left Canal</i>	<i>Krishna Delta Canals</i>
Perennial	plus 40,000 acres	Nil
Kharif	minus 210,000 „	„
Rabi	plus 290,000 „	plus 100,000 acres
<b>Total</b>	<b>plus 120,000 „</b>	<b>plus 100,000 „</b>

# 11. Normal rainfall and river supply proposed to be diverted

The withdrawals by the Nagarjunasagar Left Canal and the Krishna Delta Canals will be as follows :

<i>Month</i>	<i>Nagarjunasagar Left Canal</i>		<i>Krishna Delta Canals</i>
	<i>River supply proposed to be diverted (T.M.C.)</i>	<i>Capacity factor (capacity 11,000 cusec)</i>	<i>River supply proposed to be diverted (T.M.C.)</i>
June	5.42	0.19	24.68
July	24.52	0.83	38.11
Aug.	27.50	0.93	33.40
Sep.	22.63	0.79	29.53
Oct.	22.07	0.75	27.81
Nov.	15.95	0.56	17.83
Dec.	4.52	0.15	8.18
Jan.	3.76	0.13	9.76
Feb.	9.46	0.36	12.17
Mar.	7.78	0.26	13.04
Apr.	7.28	0.26	14.28
May	5.00	0.17	2.31
<b>Total</b>	<b>155.89</b>		<b>231.10</b>
Deduct diversion provided elsewhere	131.68		214.03
<b>Additional diversion</b>	<b>24.21</b>		<b>17.07</b>

12. to 14. As per Krishna Delta System and Nagarjunasagar Project

### 15. Proposed pattern of irrigated cultivation

The following modifications are proposed in the Nagarjunasagar Left Canal and the Krishna Delta Canals :

	Perennials		Kharif			Rabi			Grand Total (T. acres)
	Percentage	Total area (T. acres)	principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
			Paddy	Dry crops		Paddy	Dry crops		
<i>Nagarjunasagar left Canal</i>									
(i) as under Nagar- junasagar Project	—	—	65	35	880	—	—	—	880
(ii) as now proposed	4	40	46.8	20.2	670	12.0	17.0	290	1,000
<i>Krishna Delta Canals</i>									
(i) as under Krishna Delta System	1.8	25	87.3	—	1,200	10.9	—	150	1,375
(ii) as now proposed	1.7	25	81.4	—	1,200	16.9	—	250	1,475

16.-17. Same as under Krishna Delta System and Nagarjunasagar Project

18. See item 21 below

### 19. River supply proposed to be diverted and operation head

Month and fortnight		Range of operation head (feet)	Supply passing through turbines	
			Cusecs	T.M.C.
June	I	315.5	7,446	9.65
	II	313.0	7,492	9.71
July	I	316.5	9,384	12.16
	II	331.0	8,973	12.40
Aug.	I	342.0	8,685	11.26
	II	343.0	8,660	11.97
Sep.	I	337.0	8,814	11.42
	II	337.0	8,814	11.42
Oct.	I	340.0	8,736	11.32
	II	343.0	8,660	11.97
Nov.	I	342.5	7,100	9.20
	II	341.5	7,100	9.20
Dec.	I	340.5	6,892	8.93
	II	339.0	6,892	9.53
Jan.	I	337.5	6,953	9.01
	II	336.0	6,986	9.66
Feb.	I	334.0	7,024	8.49
	II	332.5	7,054	8.53
Mar.	I	331.0	7,084	9.18
	II	328.0	7,140	9.87
Apr.	I	326.0	7,192	9.32
	II	323.5	7,254	9.40
May	I	320.5	7,323	9.49
	II	318.0	7,388	10.21
Total				243.30

**20. Proposed disposal of tail-race waters** Will be let into the river

**21. Quantum of river supplies available in relation to withdrawals**

River supply data at the site not available. The adequacy or otherwise of river supplies for this project would also be governed by the requirements of an integrated basin-wide plan.

#### GENERAL

**22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. Extent and type of area submerged by reservoir**

Wet lands 3,574 acres ; dry cultivated lands 89,958 acres ; garden 570 acres ; government waste land 13,246 acres ; forest and river course 42, 412 acres

**24. Total cost of the scheme**

Rs. 30.37 lakhs inclusive of transmission lines

**25. Financial return of the scheme**

10.74 percent in the sixth year of operation

**26.** Not applicable

**27. Cost per k. W. installed**

Rs. 920

**28. Main features and purpose of the scheme**

Generation of power



# NAGARJUNASAGAR HYDRO-ELECTRIC SCHEME

2C.2-K.7-A.2

1. Name of State Andhra Pradesh (formerly in Hyderabad and Madras)

2. Scope of the scheme or system

Multipurpose scheme ; irrigation as in 1C. 1-K. 7-A. 1; power, two units of 50,000 k.W. each.

3. to 5. as in 1C. 1-K. 7-A. 1

6. Not applicable

7. (a) Nature of investigations carried out up-to-date Project report is ready

(b) Actual or probable date of beginning of construction 1962-63

8. Probable date of beginning of operation 1965-66

9. to 18. Not applicable

## POWER ASPECTS

19. River supply proposed to be diverted and operation head

Alternative I (without Srisaillam Reservoir)

Month and fortnight	Range of operation head (feet)	Supply passing through turbines	
		Cusecs	T.M.C.
June I	262.0	4,400	5.71
II	261.0	5,750	7.45
July I	280.5	5,347	6.93
II	302.0	4,967	6.87
Aug. I	304.0	4,934	6.39
II	304.0	4,934	6.82
Sep. I	304.0	4,934	6.39
II	304.0	4,934	6.39
Oct. I	304.0	4,934	6.39
II	304.0	4,934	6.32
Nov. I	299.5	5,008	6.49
II	292.0	5,137	6.66

Month and fortnight	Range of operation head (feet)	Supplies passing through turbines	
		Cusecs	T.M.C.
Dec. I	288.0	3,460	4.48
II	296.5	3,120	4.31
Jan. I	285.0	3,158	4.09
II	283.0	3,180	4.40
Feb. I	281.0	2,990	3.61
II	279.0	3,225	3.90
Mar. I	277.0	3,110	4.03
II	275.0	3,060	4.23
Apr. I	272.5	3,302	4.28
II	269.5	3,339	4.33
May I	266.5	3,080	3.99
II	264.0	3,140	4.34
Total			128.80

## Alternative II (with Srisaillam Reservoir)

Month and fortnight	Range of operation head (feet)	Supplies passing through turbines	
		Cusecs	T.M.C.
June I	277.5	4,430	5.74
II	272.5	5,504	7.13
July I	270.5	5,546	7.19
II	275.5	5,388	7.45
Aug. I	280.5	5,366	6.95
II	293.5	5,114	7.07
Sep. I	304.0	4,934	6.39
II	304.0	4,934	6.39
Oct. I	301.0	4,986	6.46
II	297.0	5,045	6.97
Nov. I	291.0	5,154	6.68
II	282.5	5,310	6.88
Dec. I	279.5	3,320	4.30
II	280.0	3,045	4.21
Jan. I	281.5	3,640	4.72
II	282.5	3,420	4.73
Feb. I	282.5	4,650	5.62
II	281.5	5,350	6.47



Month and fortnight		Range of operation head (feet)	Supplies passing through turbines	
			Cusecs	T.M.C.
Mar.	I	280.5	4,850	6.29
	II	279.5	4,800	6.64
Apr.	I	278.5	5,386	6.98
	II	277.5	5,406	7.01
May	I	276.5	4,850	6.30
	II	276.5	3,240	4.48
Total				<b>149.05</b>

**20. Proposed disposal of tail-race waters**

Tail race waters will be let into the river

**21. Quantum of river supplies available in relation to withdrawals**

River supply data at the site not available. The adequacy or otherwise of river supplies for this project would also be governed by the requirements of an integrated basin-wide plan.

**GENERAL**

**22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. Not applicable**

**24. Total cost of the scheme**

Rs. 5,19 lakhs (1961) excluding cost of transmission lines

**25. Financial return of the scheme**

5.78 percent in the fourth year of operation

**26. Not applicable**

**27. Cost per k.W. power installed**

Rs. 519

**28. Main features and purpose of the scheme**

Generation of power

**KOTEPALLI PROJECT****3C. 2-K. 6-A.3**

1. **Name of State** Andhra Pradesh (formerly in Hyderabad)
2. **Scope of the scheme or system**  
Irrigation scheme ; flow-cum-storage ; Ayacut 7,750 acres
3. **Source of supply**  
Kotepallivagu near Vikarabad/Bhima/Krishna  
Utilisation upstream :  
existing : nil  
proposed : nil
4. **Description of the reservoir or tank**

Live storage	0.96 T.M.C.
Dead storage	0.07 "
Carry-over	0.27 "
Annual reservoir losses	0.33 "
Filling period	June to Sep.
Depletion period	June to Apr.
Catchment area	119 square miles
Area submerged	1,483 acres
Full reservoir level	R. L. 1,688
Minimum pond level	R. L. 1,660
5. **Description of the headworks**  
Dam : earthen, 6,368 feet long, 70 feet high  
Spillway : high co-efficient weir, 450 feet long and 835 feet long skin wall on left flank, total capacity 38,080 cusecs  
Outlets : one head sluice, 3 feet x 2 feet, capacity 36 cusecs ;  
two head sluices on right, 4 feet x 3.5 feet each, total capacity 188 cusecs
6. **Description of the canals**  
Left Bank canal (contour) ; 2 miles long ; one seasonal ; unlined ; capacity 25 cusecs  
Right Bank Canal (contour) ; 7 miles long ; two seasonal ; unlined ; capacity 156 cusecs
7. (a) **Nature and investigations carried out up-to-date** Project report ready  
(b) **Actual or probable date of beginning of construction** III Plan
8. **Probable date of beginning of operation** December 1965

## IRRIGATION ASPECTS

## 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Hyderabad

	<i>Left Canal</i>	<i>Right Canal</i>	<i>Total</i>
	.....thousand acres.....		
G. C. A.	1.5	11.4	12.9
C. C. A.	1.2	8.8	10.0
Ayacut	0.9	6.9	7.8

## 10. Area proposed to be irrigated annually and intensity of irrigation

		<i>Left Canal</i>		<i>Right Canal</i>	
		<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
		<i>T. acres</i>	<i>percentage</i>	<i>T. acres</i>	<i>percentage</i>
<i>Abi</i>	...	0.9	100.0	6.9	100.0
<i>Tabi</i>	...	—	—	0.9	13.0
<b>Total</b>	...	0.9	100.0	7.8	113.0

## 11. Normal rainfall and river supply proposed to be diverted

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>		<i>Capacity factor</i>	
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>			<i>Left Canal</i>	<i>Right Canal</i>
				<i>Left Canal</i>	<i>Right Canal</i>		
1	2	3	4	5	6	7	8
	.....inches.....			.....T.M.C.....			
June	5.6	2.3	Nil	0.01	0.07	0.15	0.17
July	8.7	5.2	„	0.03	0.24	0.45	0.57
Aug.	8.6	4.3	„	0.05	0.38	0.75	0.91
Sep.	9.9	5.9	„	0.04	0.32	0.62	0.79
Oct.	3.4	4.4	„	0.04	0.28	0.60	0.67
Nov.	1.0	1.0	0.1	0.01	0.05	0.15	0.12
Dec.	0.3	0.5	0.1	Nil	Nil	...	...
Jan.	Nil	Nil	Nil	„	0.05	...	0.12
Feb.	0.3	0.7	„	„	0.04	—	0.11
Mar.	0.7	2.6	0.1	„	0.05	...	0.12
Apr.	1.4	1.5	Nil	„	0.04	—	0.10
May	1.2	2.2	„	„	Nil	...	...
<b>Total</b>	<b>41.1</b>			<b>0.18</b>	<b>1.52</b>		
<b>Total for both canals</b>				<b>1.70</b>	<b>T.M.C.</b>		

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy loams

(b) Has any study been made of the likely effect of introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

<i>Kharif</i>			<i>Rabi</i>			<i>Total cropped area (T. acres)</i>
<i>Percentage of principal crops</i>		<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>		<i>Total area (T. acres)</i>	
<i>Jowar</i>	<i>Others</i>		<i>Pulses</i>	<i>Oil Seeds</i>		
28.6	31.4	2.9	16.6	23.2	1.9	
					4.8	

15. (a) Proposed pattern of irrigated cultivation

<i>Abi</i>		<i>Tabi</i>		<i>Grand Total (T. acres)</i>
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	
<i>Paddy</i>		<i>Paddy</i>		
89.7	7.8	10.3	0.9	8.7

(b) Are there any rules for regulating crop pattern?

No

16. Duty and Delta at canal head (as anticipated)

<i>Duty (acres per mean cusec)</i>		<i>Delta (feet)</i>		
<i>Abi</i>	<i>Tabi</i>	<i>Abi</i>	<i>Tabi</i>	<i>Overall</i>
80	60	4.5	4.6	4.5

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated there from

Nil

(b) Not available

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

## GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Nil

23. Extent and type of area submerged by reservoir

960 acres (110 acres wet and 850 acres dry)

24. Total cost of the scheme Rs. 23 lakhs

25. Financial return of the scheme 3.95 percent

26. Cost per acre irrigated Rs. 270

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture



## VARADARAJA SWAMY PROJECT

4C.2-K.7-A.4

1. Name of State                      Andhra Pradesh (formerly in Madras)

2. Scope of the scheme or system

Irrigation scheme ; flow-cum-storage ; additional Ayacut 2,500 acres

3. Source of supply

Munimadgulavagu near Varadaraja swamy temple/Bhawanasi/Krishna

No existing or proposed utilisation upstream

4. Description of the reservoir or tank

Live storage	0.36 T. M. C.
Dead storage	0.02    „
Carry-over	Nil
Annual reservoir losses	0.10 T. M. C.
Filling period	July to Oct.
Depletion period	July to Oct.
Catchment area	70 square miles
Area submerged	317 acres
Full reservoir level	R. L. 1,213
Minimum pond level	R. L. 1,160

5. Description of the headworks

Dam :	earthen, 1,790 feet long, 30 feet high and masonry, 231 feet long, 97 feet high
Spillway :	two vents, 40 feet x 16 feet each, total capacity 28,000 cusecs
Outlet :	one vent, 10 feet x 8 feet

6. Description of the canals

No canals are proposed ; water will be led to various tanks under which the Ayacut lies through existing streams

7. (a) Nature of investigations carried out up-to-date

Project report ready

(b) Actual or probable date of beginning of construction

III plan

8. Probable date of beginning of operation

1965

## IRRIGATION ASPECTS

## 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Kurnool	
G. C. A.	7,200. acres
C. C. A.	6,400 „
Ayacut	5,400 „
Deduct Ayacut under existing tanks	2,900 „
Additional Ayacut	2,500 „

## 10. Area proposed to be irrigated annually and intensity of irrigation

<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
Abi 5,400 acres	100.0 percent

## 11. Normal rainfall and river supply proposed to diverted

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>	
1	2	3	4	5
	<i>.....inches.....</i>			<i>...T. M. C....</i>
June	4.5	12.7	0.1	0.18
July	7.0	18.1	2.2	0.24
Aug.	5.9	17.4	1.3	0.19
Sep.	6.5	21.4	1.0	0.14
Oct.	2.3	9.0	0.3	0.12
Nov.	1.0	9.1	0.1	Nil
Dec.	0.1	1.0	0.2	„
Jan.	0.1	0.9	Nil	„
Feb.	0.2	1.1	0.2	„
Mar.	0.3	3.5	Nil	„
Apr.	0.8	5.6	0.1	„
May	1.8	4.9	0.3	„
<b>Total</b>	<b>30.5</b>			<b>0.87</b>

12. Not available

## 13. (a) Characteristics of soils in the commanded area

Black cotton soil and red loam

(b) Has any study been made of the likely effect of introduction of irrigation on soil characteristics?

No

## 14. Existing pattern of cultivation in the area proposed to be irrigated

<i>Abi</i>	
<i>Percentage of principal crops</i>	<i>Total area</i> <i>(T. acres)</i>
<i>Paddy</i>	
100.0	2.9
2,500 acres barren lands	

## 15. (a) Proposed pattern of irrigated cultivation

<i>Abi</i>	
<i>Percentage of principal crops</i>	<i>Total area</i> <i>(T. acres)</i>
<i>Paddy</i>	
100.0	5.4

(b) Are there any rules for regulating crop pattern ?

No

## 16. Duty and Delta at canal head (as anticipated)

<i>Duty</i> <i>(acres per mean cusec)</i>	<i>Delta</i> <i>(feet)</i>
<i>Abi</i>	<i>Abi</i>
89	2.7

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated there from

8 tanks, irrigating 2,943 acres, merged with the Ayacut

(b) Not available

## 18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable



## GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Nil

23. Extent and type of area submerged by reservoir 318 acres (forest land)

24. Total cost of the scheme Rs. 43 lakhs

25. Financial return of the scheme 1.47 percent

26. Cost per acre irrigated Rs. 787

27. Not applicable

28. Main features and purpose of the scheme Cultivation of paddy



**LANKASAGAR PROJECT**

5C.2-K.12-A.5

**1. Name of State** Andhra Pradesh (formerly in Hyderabad)

**2. Scope of the scheme or system**

Irrigation scheme ; flow-cum-storage; Ayacut 5,100 acres

**3. Source of supply**

Kattaleru at Lankapadhy/Munneru/Krishna  
utilisation upstream existing and planned : nil

**4. Description of the reservoir or tank**

Live storage	0.30 T.M.C.
Dead storage	0.03 „
Carry-over	Nil
Annual reservoir losses	0.21 T.M.C.
Filling period	June to Sep.
Depletion period	Oct. to Nov.
Catchment area	80 square miles
Area submerged	1,090 acres
Full reservoir level	R.L. 394
Minimum pond level	R.L. 383

**5. Description of the head works**

Dam : earthen, 7,206 feet long, 40 feet high  
Spillway : weir, 924 feet long, capacity 18,000 cusecs  
Outlets : two head sluices, 3 feet x 2.5 feet, capacity 45 cusecs each

**6. Description of the canals**

Right Bank Canal (contour); 7.5 miles long; one seasonal; unlined; capacity 42.5 cusecs

Left Bank Canal (contour); 7.5 miles long; one seasonal; unlined; capacity 42.5 cusecs

**7. (a) Nature of investigations carried out up-to-date**

Project report ready

**(b) Actual or probable date of beginning of construction**

III plan

**8. Probable date of beginning of operation**

1965

## IRRIGATION ASPECTS

## 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

District	Khamman		
	<i>Left Canal</i>	<i>Right Canal</i>	<i>Total</i>
	<i>thousand acres</i>		
G.C.A.	4.5	4.5	9.0
C.C.A.	3.5	3.5	7.0
Ayacut	2.6	2.5	5.1

## 10. Area proposed to be irrigated annually and intensity of irrigation (both canals)

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
<i>Abi</i>	5,100 acres	100.0 percent

## 11. Normal rainfall and river supply proposed to be diverted (both canals)

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
	<i>.....inches.....</i>			<i>.....T.M.C.....</i>	
June	5.1	6.1	2.5	0.05	0.23
July	9.4	17.3	4.5	0.21	0.92
Aug.	7.8	17.0	4.3	0.15	0.66
Sep.	6.3	12.9	4.5	0.16	0.73
Oct.	4.2	9.7	0.7	0.17	0.75
Nov.	1.5	5.5	Nil	0.03	0.14
Dec.	0.2	1.3	"	Nil	—
Jan.	0.2	0.9	"	"	—
Feb.	0.4	1.3	"	"	—
Mar.	0.5	3.6	"	"	—
Apr.	0.9	3.0	"	"	—
May	1.5	3.8	"	"	—
<b>Total</b>	<b>38.0</b>			<b>0.77</b>	

12.—13. Not available

**14. Existing pattern of cultivation in the area proposed to be irrigated**

Kharif			Rabi			Total cropped area (T.acres)
percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total ares (T. acres)	
Jowar	Others		Pulses	Oil seeds		
46.6	20.1	2.4	18.5	14.8	1.2	3.6

**15. (a) Proposed pattern of irrigated cultivation**

<i>Abi</i>	
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>
<i>Paddy</i>	
100.0	5.1

(b) Are there any rules for regulating crop pattern

No

**(16) Duty and Delta at canal head (as anticipated)**

<i>Duty (acres per mean cusec)</i>	<i>Delta (feet)</i>
<i>Abi</i>	<i>Abi</i>
96	3.5

**17 (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated there from**

7 tanks irrigating 98 acres, excluded from Ayacut

(b) Not available

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**19. to 21.** Not applicable**GENERAL****22 Aspect other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

**23. Extent and type of area submerged by reservoir**

Wet lands 70 acres ; dry lands 310 acres ; government waste lands 125 acres and forests 585 acres ; total 1,090 acres

**24. Total cost of the scheme** Rs. 30 lakhs

**25. Financial return of the scheme** 2.82 percent

**26. Cost per acre irrigated** Rs. 588

**27.** Not applicable

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture



सत्यमेव जयते

**VAIKUNTHANPURAM PUMPING SCHEME****12C.2-K. 7-A.6**

1. **Name of State** Andhra Pradesh (formerly in Madras)
2. **Scope of the scheme or system**  
Irrigation scheme; lift maximum 27 feet, average 17 feet; power from Machkund; Ayacut 17,000 acres
3. **Source of supply**  
Krishna at Vaikunthapuram (17 miles above Vijayawada) Considerable utilisation upstream, both existing and proposed
4. Not applicable
5. **Description of the headworks**  
Pump house, having 4 suction wells of 8.0 feet inner diameter, connected to the deep water course (of Krishna river) by 120 feet long, 4 feet reinforced cement concrete pressure pipe. 4 pumps (including 1 stand by) of 466 H.P. each, capacity 243 cusecs
6. **Description of the canal**  
Right Bank Canal (ridge); 13.4 miles long (branches 5.75 miles); one seasonal; unlined; capacity 243 cusecs
7. (a) **Nature of investigations carried out up-to-date** Project report ready  
(b) **Actual or probable date of beginning of construction** III Plan
8. Not available

**IRRIGATION ASPECTS**

9. **Gross commanded area, culturable commanded area and Ayacut, district-wise**

District Guntur

G.C.A. 37,100 acres

C.C.A. 20,800 „

Ayacut 17,000 „

10. **Area proposed to be irrigated annually and intensity of irrigation**

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
Abi	17,000 acres	100.0 percent

**11. Normal rainfall and river supply proposed to be diverted**

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
I	2	3	3	4	5
	.....inches.....			.....T.M.C. ....	
June	4.1	7.4	1.3	0.48	0.76
July	5.6	11.9	3.4	0.41	0.63
August	5.7	11.0	1.8	0.41	0.63
September	5.9	6.3	2.7	0.37	0.59
October	5.5	14.8	2.9	0.41	0.63
November	3.1	7.2	0.1	0.54	0.86
December	0.4	2.8	0.2	Nil	—
January	0.3	N.A.	Nil	„	—
February	0.5	„	„	„	—
March	0.6	3.3	„	„	—
April	0.5	3.8	0.2	„	—
May	2.0	6.1	0.4	„	—
<b>Total</b>	<b>34.2</b>			<b>2.62</b>	

**12.** Not available

**13. (a) Characteristics of soils in the commanded area**

Light black cotton soil or alluvium

**(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?**

No

**14. Existing pattern of cultivation in the area proposed to be irrigated**

Kharif		Rabi		
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Total cropped area (T. acres)
Maize		Tabacco		
41.2	7.0	58.8	10.0	17.0

**15. (a) Proposed pattern of irrigated cultivation**

Abi	
Percentage of principal crops	Total area (T. acres)
Paddy	
100.0	17.0

**(b) Are there any rules for regulating crop pattern ?** No

**16. Duty and Delta at canal head (as anticipated)**

<i>Duty</i> (acres per mean cusec)	<i>Delta</i> (feet)
<i>Abi</i>	<i>Abi</i>
103	3.5

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

**(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available but there will be enough water in the river for project requirements

**19. to 21. Not applicable****GENERAL****22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. Extent and type of area submerged by reservoir** Nil**24. Total cost of the scheme** Rs. 48 lakhs**25. Financial return of the scheme** 15.56 percent**26. Cost per acre irrigated** Rs. 285**27. Not applicable****28. Main features and purpose of the scheme**

Conversion of dry cultivation to irrigated paddy



**GAZULADINNE PROJECT**

13C.2-K. 8-A. 7

1. Name of State Andhra Pradesh (formerly in Madras)

2. Scope of the scheme or system

Irrigation scheme; flow-cum-storage, Ayacut 11,500 acres

3. Source of supply

Handri at Gazuladinne/Tungbhadra/Krishna

No existing or proposed utilisation upstream

4. Description of the reservoir or tank

Live storage	1.50 T. M. C.
Dead storage	0.20 „
Carry-over	Nil
Annual reservoir losses	0.20 T. M. C.
Filling period	Aug. to Oct.
Depletion period	Aug. to Nov.
Catchment area	489 square miles
Area submerged	3,360 acres
Full reservoir level	R. L. 12.23
Minimum pond level	R. L. 1.206

5. Description of the headworks

Dam	: earthen, 10,984 feet long, 42 feet high
Spillway	: ogee type, 340 feet long, 7 vents of 40 feet x 20 feet, capacity 93,800 cusecs
Head sluice	: right flank, two vents, 9 feet x 4.5 feet each, total capacity 300 cusecs
	: left flank, one vent of 4 feet x 3 feet, capacity 25 cusecs

6. Description of the canals

Right Bank Canal (contour); 13.0 miles long; one seasonal; unlined; capacity 170 cusecs

Left Bank Canal (contour); 3.4 miles long; one seasonal; unlined; capacity 25 cusecs

7. (a) Nature of investigations carried out up to date Project report under preparation  
 (b) Actual or probable date of beginning of construction III Plan  
 8. Probable date of beginning of operation 1965

## IRRIGATION ASPECTS

9. Gross commanded area, culturable commanded area and Aycut, district-wise

District Kurnool	
G. C. A.	15,000 acres
C. C. A.	12,800 „
Ayacut	11,500 „

10. Area proposed to be irrigated annually and intensity of irrigation

Area proposed to be irrigated	Intensity of irrigation on Ayacut
Abi 11,500 acres	100.0 percent

11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
1	2	3	4	5	6
	.....inches.....			.....T. M. C.....	
June	2.8	6.1	0.3	0.33	0.65
July	3.1	7.5	0.2	0.32	0.61
August	3.8	13.9	0.3	0.29	0.56
September	5.8	16.2	0.9	0.19	0.38
October	4.0	12.9	0.5	0.30	0.57
November	1.2	6.3	0.1	0.38	0.75
December	0.1	3.1	0.5	Nil	—
January	0.1	N.A.	Nil	„	—
February	0.2	0.2	0.2	„	—
March	0.2	0.3	Nil	„	—
April	0.7	1.9	0.1	„	—
May	1.5	11.3	Nil	„	—
<b>Total</b>	<b>23.5</b>			<b>1.81</b>	

12. Not available

13. (a) Characteristics of soils in the commanded area . Black cotton soil and red loam

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

<i>Kharif</i>	
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>
<i>Maize</i>	
100.0	6.4

5,100 acres barren lands

15. (a) Proposed pattern of irrigated cultivation

<i>Abi</i>	
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>
<i>Paddy</i>	
100.0	11.5

(b) Are there any rules for regulating crop pattern ?

No

16. Duty and Delta at canal head (as anticipated)

<i>Duty (acres per mean cusec)</i>	<i>Delta (feet)</i>
<i>Abi</i>	<i>Abi</i>
91	3.6

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**19. to 21.** Not applicable**GENERAL****22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. Extent and type of area submerged by reservoir**

3,608 acres (3,075 acres cultivated 533 acres waste), all within Andhra Pradesh

**24. Total cost of the scheme** Rs. 94 lakhs**25. Financial return of the scheme** 2.1 percent**26. Cost per acre irrigated** Rs. 814**27.** Not applicable**28. Main features and purpose of the scheme**

Increase in cultivated area and conversion of dry cultivated to irrigated agriculture



## AKHERU PROJECT

14C.2-K.12-A.8

1. **Name of State** Andhra Pradesh (formerly in Hyderabad)

2. **Scope of the scheme or system**

Irrigation scheme ; flow-cum-storage, Ayacut 6,500 acres

3. **Source of supply**

Akheru at Jaipurma/Muneru/Krishna

Utilisation upstream tanks and minor works only

4. **Description of the reservoir or tank**

Live storage	0.62 T.M.C.
Dead storage	0.12 „
Carry-over	Nil
Annual reservoir losses	0.13 T.M.C.
Filling period	June to November
Depletion period	June to November
Catchment area	650 square miles
Area submerged	1,513 acres
Full resvoir level	R.L. 612
Minimum pond level	R.L. 598

5. **Description of the headworks**

Dam : earthen, 8,000 feet long (including spillway portion), 49 feet high

Spillway : high coefficient weir, 800 feet long, submerged 1,100 feet long, capacity 174,760 cusecs

Outlets : one vent 3 feet x 3 feet ; 54 cusecs capacity and one vent, 4 feet x 5 feet 120 cusecs capacity

6. **Description of the canals**

Right Bank Canal (contour) ; 20 miles long ; one seasonal ; unlined ; authorised capacity 77 cusecs

Left Bank Canal (contour) ; 6 miles long ; one seasonal ; unlined ; authorised capacity 33 cusecs

## 7. (a) Nature of investigations carried out up-to-date

Project report under preparation

## (b) Actual or probable date of beginning of construction

III plan

## 8. Probable date of beginning of operation

1965

## IRRIGATION ASPECTS

## 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Warangal

	<i>Right Bank Canal</i>	<i>Left Bank Canal</i>	<i>Total</i>
	<i>.....thousand acres.....</i>		
G. C. A.	8.9	3.7	12.6
C. C. A.	7.7	3.2	10.9
Ayacut	4.6	1.9	6.5

## 10. Area proposed to be irrigated annually and intensity of irrigation

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
<i>Abi</i>	6,500 acres	100.0 percent

## 11. Normal rainfall and river supply proposed to be diverted

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
1	2	3	4	5	6
	<i>.....inches.....</i>			<i>.....T.M.C.....</i>	
June	7.3	12.0	1.6	0.15	0.53
July	11.0	22.5	6.9	0.23	0.78
Aug.	8.8	14.7	6.6	0.23	0.78
Sep.	7.3	15.7	1.9	0.23	0.81
Oct.	2.1	9.7	Nil	0.23	0.78
Nov.	1.0	3.2	"	0.23	0.81
Dec.	0.1	0.6	"	Nil	—
Jan.	0.2	1.3	"	"	—
Feb.	0.9	0.8	"	"	—
Mar.	0.4	4.2	"	"	—
Apr.	0.8	3.3	"	"	—
May	1.6	6.7	"	"	—
Total	41.5			1.30	

12. Not available

13. (a) Characteristics of soils in the commanded area Loamy soil

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharij				Rabi			Total cropped area (T. acres)
Percentage of principal crops			Total area (T. acres)	Percentage of principal crops		Total area (T.acres)	
Jowar	Maize	Groundnut		Jowar	Cereals		
40.0	15.0	12.0	3.0	22.0	11.0	1.5	4.5

15. (a) Proposed pattern of irrigated cultivation

<i>Abi</i>	
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>
<i>Paddy</i>	
100	6.5

(b) Are there any rules for regulating crop pattern ? No

16. Duty and Delta at canal head (as anticipated)

<i>Duty (acres per mean cusec)</i>	<i>Delta (feet)</i>
<i>Abi</i>	<i>Abi</i>
71	4.6

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

51 tanks with an Ayacut of 3,269 acres, not merged in the Ayacut

(b) Not available

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

## GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

- 23. Extent and type of area submerged by reservoir**

1,513 (dry lands 893 acres, and wet lands 620 acres) in Andhra Pradesh

- |     |                                |              |
|-----|--------------------------------|--------------|
| 24. | Total cost of the scheme       | Rs. 41 Lakhs |
| 25. | Financial return of the scheme | 2.59 percent |
| 26. | Cost per acre irrigated        | Rs. 630      |

27. Not applicable

- ## 28. Main features and purpose of the scheme

### Conversion of rain-fed cultivation to irrigated agriculture





## KOYNA IRRIGATION SCHEME-STAGE I

6C.2-K.1-M.1

1. **Name of State** Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**  
Irrigation scheme ; flow-cum-storage ; additional C.C.A. 112,800 acres
3. **Source of supply**
  - (i) Koyna/Krishna (ii) Krishna at Khodshi weir  
No upstream utilisation on Koyna ;  
Upstream utilisation on the Krishna above Khodshi : three proposed schemes  
19C. 3-K. 1-M.4 to 21C. 3-K. 1-M.6
4. Not applicable
5. **Description of the headworks**
  - (i) Warunji weir on Koyna : 936 feet long, capacity 362,000 cusecs No regulator but pumps on either bank to lift (60 feet) 675 cusecs on right bank and 885 cusecs (22 feet lift) on left bank, power to be obtained from Koyna
  - (ii) Kodshi weir on Krishna : Same as per 8A-K.1-M.1
6. **Description of the canals**
  - (i) Koyna Canal (contour) ; right bank ; 43 miles long ; perennial ; unlined ; authorised capacity 675 cusecs
  - (ii) Link Canal (contour) ; left bank ; 3½ miles long ; perennial ; lined ; authorised capacity 585 cusecs
  - (iii) Krishna Canal (contour) ; left bank ; 64 miles long ; perennial ; unlined ; authorised capacity 885 cusecs. The existing Krishna Canal (8A-K.1-M.1) will merge in this.
7. (a) **Nature of investigations carried out upto-date** Project report ready  
(b) **Actual or probable date of beginning of construction** 1962-63
8. **Probable date of beginning of operation** 1966-67

## IRRIGATION ASPECT

## 9. Gross commanded area and culturable commanded area, district-wise

Item	Names of Districts		Total		
	Satara	Sangli	G.C.A.	C.C.A.	
.....thousand acres.....					
Koyna Canal	G.C.A.	19.3	70.7	90.0	—
	C.C.A.	17.3	63.2	—	80.5
Link Canal	G.C.A.	2.1	—	2.1	—
	C.C.A.	2.0	—	—	2.0
Krishna Canal	G.C.A.	11.2	65.8	77.0	—
	C.C.A.	9.2	59.8	—	69.0
Total			169.1	151.5	
Deduct area under well irrigation on all canals					5.3
Net G.C.A.					146.2
Deduct C.C.A. on existing Krishna Canal					33.4
Additional C.C.A.					112.8

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated		Intensity of irrigation	
	Koyna Canal	Krishna Canal and Link Canal	Koyna Canal	Krishna Canal and Link Canal
.....thousand acres.....			.. ..percentage.....	
Perennial	11.5	15.5	14.3	22.5
Two seasonal	5.1	—	6.3	—
Kharif (Paddy)	—	25.0	—	36.2
Kharif (Others)	9.6	—	11.9	—
Rabi	25.2	10.0	31.3	14.5
Hot weather	1.1	1.2	1.4	1.7
<b>Total</b>	<b>52.5</b>	<b>51.7</b>	<b>65.2</b>	<b>74.9</b>

Note.—These areas are in addition to those irrigated under 8A-K. 1-M. 1 Krishna Canals.

# 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall						River supply diverted		Capacity factor		
	Koyna Canal			Krishna Canal			Koyna Canal	Krishna Canal and Link Canal	Koyna Canal	Krishna Canal	
	Normal	Maximum	Minimum	Normal	Maximum	Minimum					
	.....inches.....						.....T.M.C.....				
June	4.0	11.4	0.4	4.1	10.9	0.4	15th June to 14th Oct.				
July	7.0	14.5	0.3	6.2	14.8	0.7	3.70	8.30	0.52	0.89	
Aug.	4.0	14.6	0.2	3.9	12.8	0.4					
Sep.	5.0	10.6	0.2	3.3	9.6	0.4					
Oct.	4.0	9.9	Nil	4.1	10.3	0.2	15th Oct. to 14th Feb.				
Nov.	1.0	6.2	„	1.4	8.2	Nil	4.90	5.30	0.68	0.56	
Dec.	0.3	4.9	„	0.2	3.9	„					
Jan.	0.1	3.0	„	0.2	3.8	„					
Feb.	0.1	1.4	„	Nil	0.7	„	15th Feb. to 14th June				
Mar.	0.2	1.8	„	0.2	2.2	„	3.00	4.20	0.43	0.46	
Apr.	1.1	4.7	„	0.9	4.0	„					
May	1.7	6.7	„	1.8	8.4	„					
Total	28.5			28.1			11.60	17.80			
Total for both canals							29.40 T.M.C.				

*This diversion does not include the existing diversion for the Krishna Canal*

12.—13. Not available

## 14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			Kharif						Continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops					Total area (T. acres)	
Sugarcane	Others		Jowar	Paddy	Groundnut	Others	Pulses		
Koyna Canal									
2.5	0.5	2.4	20.2	2.0	22.0	1.6	6.4	42.0	
Krishna and Link Canals									
2.5	0.1	1.9	18.6	2.7	18.1	1.5	3.0	31.2	

Continued from above	Rabi					Hot Weather			Total cropped area (T. acres)
	Percentage of Principal crops				Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
	Jowar	Wheat	Pulses	Others		Drugs	Others		
	Koyna Canal								
	29.9	2.7	6.4	1.1	32.3	3.1	1.6	3.8	80.5
	Krishna and Link Canals								
	27.8	3.6	8.0	4.0	30.8	1.0	1.0	7.1	71.0

## 15. (a) Proposed pattern of irrigated cultivation

Perennial		Two seasonal		Kharif			Continued below
Percentage of principal crops	Total area	Percentage of principal crops	Total area	Percentage of principal crops		Total area	
Plantains etc.	(T. acres)	Others	(T. acres)	Cereal	Paddy	(T. acres)	
Koyna Canal							
20.0	11.5	9.5	5.1	18.4	—	9.6	
Krishna and Link Canals							
30.0	15.5	—	—	—	48.4	25.0	
Continued from above	Rabi		Total area (T. acres)	Hot weather		Total area (T. acres)	Grand Total (T. acres)
	Percentage of principal crops			Percentage of principal crops			
	Jowar and Wheat			Groundnut			
Koyna Canal							
	48.0	25.2		2.1		1.1	52.5
Krishna and Link Canals							
	19.3	10.0		2.3		1.2	51.7
Total							104.2

**(b) Are there any rules for regulating crop pattern**

No, but sanctions will be regulated so as to conform to the proposed crop pattern

**16. Duty on Delta at distributary head (as anticipated)**

	<i>Duty</i> (acres per mean cusec)			<i>Delta</i> (feet)			
	<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Total</i>
Perennial	65	70	50	3.8	3.5	4.8	12.1
Paddy	65	400	—	3.8	0.6	—	4.4
Two seasonal	130	140	—	1.9	1.8	—	3.7
<i>Kharif</i>	200	—	—	1.2	—	—	1.2
<i>Rabi</i> Jowar	—	180	—	—	1.3	—	1.3
<i>Rabi</i> wheat	—	150	—	—	1.6	—	1.6
Hot weather	—	—	100	—	—	2.4	2.4
Over delta at cannal head				6.5 feet			

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

**(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

2,592 wells, each irrigating about 2 acres of seasonal crop (well irrigation about 5,300 acres). The area under well irrigation is excluded from the C.C.A.

**18. Quantum of river supplies available in relation to withdrawals**

River supplies are adequate for the requirements of the project (see remarks against item 21 of 4C.1-K.1-M.1)

19 to 21. Not applicable

**GENERAL****22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

**23. Extent and type of area submerged by reservoir**

Culturable

Waste and forest land

Total

Entire submergence lies in Maharashtra

Warunji Pick-up-weir

4,000 acres

1,100 „

5,100 „

24. Total cost of the scheme Rs. 9.50 lakhs

25. Financial return of the scheme 4.3 percent

26. Cost per acre irrigated Rs. 910

27. Not applicable

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

## WARNA PROJECT

7.C.2-K.9-M.2

1. Name of State Maharashtra (formerly in Bombay)

### 2. Scope of the scheme or system

Irrigation scheme ; storage-cum-lift ; C.C.A. 25,000 acres

The water required for irrigation in Kharif will be pumped direct from the river at 6 weirs and, during the fair weather, water from the storage will be let down for being picked up at the above pick up weirs with a lift of 30 feet to 50 feet. The energy required for lifting water will be obtained from Koyna.

### 3. Source of supply

Storage : Warna at Chandoli/Krishna

Pick-up-weirs : Warna at Charan; at Chincholi; at Hargundwadi; at Sagaon; at Kedoli; and at Kundalwadi/Krishna

### 4. Description of the dam and reservoir or tank

	Warna at Chandoli
Live storage	2.86 T.M.C.
Dead storage	0.40 "
Carry-over	0.40 "
Annual reservoir losses	0.44 "
Filling period	15th June to 30th September
Depletion period	15th June to 14th June
Catchment area	116 square miles
Area submerged	2,200 acres
Full reservoir level	R.L. 1,912.5
Dead Storage level	R.L. 1,856

Dam : earthen, 1,920 feet long, 114 feet high

Spillway : left flank, 420 feet long, ungated, capacity 75,400 cusecs

Outlet : one on Right flank, capacity 400 cusecs

### 5. Description of the headworks

Kolhapur type weirs; six in number, crest varying from 8 feet to 24 feet above river bed

### 6. Description of the canals

Not applicable (being small distributaries)

### 7. (a) Nature of investigations carried out up-to-date

Project report ready

### (b) Actual or probable date of beginning of construction

III plan

### 8. Probable date of beginning of operation

1966-67

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

District Sangli	
G. C. A.	33,400 acres
C. C. A.	25,600 „
Deduct area irrigated under wells	600 „
Net C.C.A.	25,000 „

## 10. Area proposed to be irrigated annually and intensity of irrigation

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation</i>
Sugarcane (basic)	6,600 acres	26.4 percent
Rabi	9,400 „	37.6 „
Hot weather	4,000 „	16.0 „
Total	20,000 „	80.0 „

## 11. Normal rainfall and river supply proposed to be diverted

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>	
1	2	3	4	5
	<i>.....inches.....</i>			<i>...T. M. C....</i>
June	5.0	15.3	0.8	(15th June to 14th Oct.)
July	10.0	22.9	0.5	1.00
Aug.	10.0	17.8	0.8	
Sep.	6.0	10.4	0.3	
Oct.	4.4	12.4	0.6	(15th Oct. to 14th Feb.)
Nov.	1.4	9.0	Nil	1.40
Dec.	0.2	2.8	„	
Jan.	0.1	3.7	„	
Feb.	Nil	0.7	„	(15th Feb. to 14th June)
Mar.	0.2	4.8	„	1.50
Apr.	1.2	4.6	„	
May	1.8	7.3	„	
Total	40.3			3.90

12. Not available

## 13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 20 percent, silty loam to clay loam. 80 percent

## (b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

## 14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial		Two seasonal			Kharif					Total area (T. acres)	Continued below
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops						
Sugarcane		Cotton	Others		Paddy	Bajri	Ground-nut	Jowar	Others		
3.9	1.0	2.3	8.5	2.7	4.1	4.1	17.0	33.0	23.6	20.4	

Continued from above

Rabi			
Percentage of principal crops		Total area (T. acres)	Total cropped area (T. acres)
Wheat	Jowar		
1.5	2.0	0.9	25.0

## 15. (a) Proposed pattern of irrigated cultivation

Perennial		Rabi		Continued below
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
Sugarcane		Cereals		
33.0	6.6	47.0	9.4	

Continued from above

Hot weather		
Percentage of principal crops	Total area (T. acres)	Grand Total (T. acres)
Fodder		
20.0	4.0	20.0



## (b) Are there any rules for regulating crop pattern ?

No; but sanctions will be regulated so as to conform to the proposed crop pattern

## 16. Duty and Delta at distributary head (as anticipated)

	Duty (acres per mean cusec)			Delta (feet)			Total
	Kharif	Rabi	Hot weather	Kharif	Rabi	Hot weather	
Sugarcane	100	93	66	2.4	2.6	3.6	8.6
Rabi	—	280	—	—	0.9	—	0.9
Hot weather	—	—	133	—	—	1.8	1.8
Overall delta at canal head							4.5

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

## (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

About 100 wells; irrigating about 2 acres of seasonal crop each and pumps lifting water direct from river for irrigation of 400 acres of sugarcane

## 18. Quantum of river supplies available in relation to withdrawals

River supply data not available

## 19. to .21 Not applicable

## GENERAL

## 22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Nil

## 23. Extent and type of area submerged by reservoir

Culturable	1,600 acres
Waste	600 „
<b>Total</b>	<b>2,200 „</b>

## 24. Total cost of the scheme

Rs. 1,54.5 lakhs

## 25. Financial return of the scheme

4.27 percent

## 26. Cost per acre irrigated

Rs. 770

## 27. Not applicable

## 28. Main features and purpose of the scheme

Conversion of rainfed cultivation to irrigated agriculture

**BHIMA LIFT IRRIGATION PROJECT-STAGE I****80. 2-K. 5-M.3**

1. **Name of State** Maharashtra (formerly in Bombay)

2. **Scope of the scheme or system**

Irrigation scheme ; storage cum lift ; C.C.A. 1,42,400 acres (Lift 60 feet), source of power , Koyna

Considerable use upstream both existing and proposed

3. **Source of supply**

Pavna river at Phagne/Mula/Mula-Mutha/Bhima/Krishna

Bhima at Ujjani/Krishna

4. **Description of the dam and reservoir or tank**

		<i>Phagne dam on Pavna</i>	<i>Ujjani weir on Bhima</i>
Live storage	T.M.C.	7.44	4.00
Dead storage	"	0.73	6.00
Carry-over	"	1.40	Nil
Annual reservoir losses	"	1.18	1.00
Filling period		.....15th June to end Sep.....	
Depletion period		.....15th June to 14th June.....	
Catchment area (square miles)		46	5,736
Area submerged (acres)		5,000	13,200
Full reservoir level	R. L.	2,004	1,570
Minimum pond level	R. L.	1,930	1,560

Dam : earthen, 5,000 feet long, 125 feet high

Spillway : submerged spillway ; ungated ; capacity 46,000 cusecs

River sluices : capacity 1,360 cusecs

5. **Description of the headworks**

Storage-cum-diversion weir at Ujjani; submerged ogee shaped gated weir with vertical gates 40 feet x 20 feet, capacity 531,000 cusecs

No head regulator, being a lift scheme

6. **Description of the canal**

Ujjani Lift Canal (partly contour and then ridge) ; 90 miles long ; perennial lined ; authorised capacity **980 cusecs** (lift 60 feet)

7. (a) Nature of investigations carried out up-to-date  
 (b) Actual or probable date of beginning of construction
8. Not available

Project report ready  
 III Plan

### IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Sholapur	
G. C. A.	202,400 acres
C. C. A.	161,900 "
Deduct area under wells and Asti tank (17A-K. 5-M. 10)	19,500 "
Net C.C.A.	142,400 "

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	Intensity of irrigation
Perennial	13,000 acres	9.1 percent
Kharif	12,000 "	8.4 "
Rabi	49,000 "	34.4 "
Hot weather	26,000 "	18.3 "
<b>Total</b>	<b>100,000 "</b>	<b>70.2 "</b>

11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
1	2	3	4	5	6
	..... inches .....			..... T.M.C. ....	
June	3.8	11.5	0.6	15th June to 14th Oct.	
July	3.5	8.3	0.2		
Aug.	3.5	20.9	0.2	3.60	0.35
Sep.	6.5	21.2	0.2		
Oct.	3.0	11.2	Nil	15th Oct. to 14th Feb.	
Nov.	1.1	8.6	"	5.70	0.55
Dec.	0.3	3.9	"		
Jan.	0.2	1.7	"		
Feb.	0.1	2.2	"	15th Feb. to 14th June	
Mar.	0.2	1.9	"	6.10	0.60
Apr.	0.5	4.5	"		
May	0.8	3.4	"		
<b>Total</b>	<b>23.5</b>			<b>15.40</b>	

12. Not available

**13. (a) Characteristics of soils in the commanded area**

Sandy to sandy loam 30 percent, silt loam to clay loam 50 percent and clay loam to clay 20 percent

**(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?**

No

**14. Existing pattern of irrigation in the area proposed to be irrigated**

Perennial		Two seasonal		Kharif					Continued below	
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops						Total area (T. acres)
Sugarcane		Cotton		Paddy	Bajri	Pulses	Groundnut	Others		
0.3	0.5	2.5	4.0	0.6	4.0	5.3	6.2	0.5		26.8

Continued from above	Rabi				Hot weather		Total cropped acres (T. acres)
	Percentage of principal crops			Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
	Wheat	Jowar	Gram		Others		
	1.9	70.5	6.8	128.3	1.4	2.3	161.9

**15. (a) Proposed pattern of irrigated cultivation**

Perennial			Kharif		Rabi		Continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
Sugarcane/ Plantains	Others		Groundnut		Wheat and Jowar		
12.0	1.0	13.0	12.0	12.0	49.0	49.0	

Continued fr m above	Hot weather			Grand Total (T. acres)
	Percentage of principal crops		Total area (T. acres)	
	Groundnut	Folder		
	21.0	5.0	26.0	

**(b) Are there any rules for regulating crop pattern ?**

No, but sanctions will be regulated so as to conform to the proposed crop pattern

**16. Duty and Delta at distributary head (as anticipated)**

	<i>Duty</i> ( <i>acres per mean cusec</i> )		
	<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>
Sugarcane/Plantains	65	70	50
Other perennials	100	100	75
<i>Kharif</i> ground-nut	200	—	—
<i>Rabi</i>	—	200	—
Hot weather fodder and groundnut	—	—	100
Overall delta at canal head	3.5 feet		

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom  
Ashti tank (17A-K. 5-M. 10) irrigating 4,700 acres, excluded from the C.C.A.

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

2,370 wells, irrigating about 2,700 acres seasonal crops, excluded from the C.C.A.

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available; but diversion proposed in fair weather considerably in excess of storage proposed.

19. to 21. Not applicable

**GENERAL****22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Water supply (O. 1 T.M.C. from Phagne dam on Pavna river for Pimpri industrial area)

**23. Extent and type of area submerged by reservoir**

	<i>Phagne on Pavna</i>	<i>Ujjani on Bhima</i>	<i>Total</i>
.....area in thousand acres.....			
Culturable	2.9	10.2	13.1
Waste land	2.1	3.0	5.1
Total	5.0	13.2	18.2

Entire submergence is in Maharashtra

24. Total cost of the scheme Rs. 9.46 lakhs

25. Financial return of the scheme 2.1 percent

26. Cost per acre irrigated Rs. 946

27. Not applicable

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

## KURNOOR PROJECT

9C.2-K.6-M.4

1. Name of State Maharashtra (formerly in Bombay)
2. Scope of the scheme or system  
Irrigation scheme ; flow-cum-storage ; C. C. A. 20,000 acres
3. Source of supply  
Bori river ar Dahitna/Bhima/Krishna  
Utilisation upstream : nil
4. Description of the reservoir tank

Live storage	1.69 T. M. C.
Dead storage	0.36 „
Carry-over	0.20 „
Annual reservoir losses	0.44 „
Filling period	15th June to 15th Sept.
Depletion period	Sept. to June
Catchment area	210 square miles
Area submerged	1,850 acres
Full reservoir level	R. L. 1,653
Minimum pond level	R. L. 1,614
5. Description of the headworks

Dam :	carthen, 10,000 feet long, 108 feet high
Spillway :	open waste weir, 1,030 feet long, capacity 102,000 cusecs
Outlet :	conduit 6 feet diameter, designed to pass 30 cusecs at low water level
6. Description of the canals

Bori Right Bank Canal (contour) ; 20 miles long ; perennial ; unlined ; authorised capacity 100 cusecs

Bori Left Bank Canal (contour) ; 20 miles long ; perennial ; unlined ; authorised capacity 100 cusecs
7. (a) Nature of investigations carried out up-to-date Project report ready  
(b) Actual or probable date of beginning of construction 1960-61 ; Project not yet sanctioned
8. Probable date of beginning of operation 1964

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

District	Right Bank Canal			Left Bank Canal	Grand Total
	Sholapur	Osmanabad	Total	Sholapur	
	.....thousand acres.....				
G.C.A.	9.0	2.7	11.7	12.1	23.8
C.C.A.	7.6	2.3	9.9	10.1	20.0

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	Intensity of irrigation
Perennial	1,500 acres	7.5 percent
Two seasonal	2,400 „	12.0 „
Khariif	2,700 „	13.5 „
Rabi	7,500 „	37.5 „
(v) Hot weather (groundnut)	900 „	4.5 „
<b>Total</b>	<b>15,000 „</b>	<b>75.0 „</b>

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted		Capacity factor	
	Normal	Maximum	Minimum	Right Bank Canal	Left Bank Canal	Right Bank Canal	Left Bank Canal
	.....inches.....			.....T. M. C.....			
June	5.3	9.5	0.3	0.10	0.11	0.39	0.42
July	7.2	15.8	4.0	0.11	0.11	0.41	0.41
August	7.9	16.2	1.3	0.11	0.12	0.41	0.45
September	7.3	9.6	1.0	0.04	0.05	0.15	0.19
October	5.2	9.7	0.9	0.03	0.03	0.11	0.11
November	0.4	2.4	Nil	0.21	0.21	0.81	0.81
December	0.1	1.0	„	0.14	0.14	0.52	0.52
January	Nil	Nil	„	0.14	0.14	0.52	0.52
February	„	„	„	0.07	0.07	0.29	0.29
March	0.3	1.9	„	0.06	0.07	0.22	0.26
April	0.5	1.8	„	0.06	0.06	0.23	0.23
May	1.5	5.9	„	0.06	0.06	0.22	0.22
<b>Total</b>	<b>35.7</b>			<b>1.13</b>	<b>1.17</b>		
<b>Total for both canals</b>				<b>2.30 T. M. C.</b>			

12. Not available

**13. (a) Characteristics of soils in the commanded area**

No scientific soil survey carried out. The principal soil is black soil. The depth of the soil cover varies from deep in the narrow width of about a furlong in the valleys to medium soil extending in varying widths. On the spurs the soils are shallow and light.

**(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?**

No

**14. Existing pattern of cultivation in the area proposed to be irrigated**

Two seasonal			Kharif					Continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops				Total area (T. acres)	
Cotton	Others		Bajri	Paddy	Pulses	Groundnut		
1.0	6.1	1.1	6.9	1.3	29.7	10.0	7.5	

Continued from above	Rabi				Total cropped area (T. acres)
	Percentage of principal crops			Total area (T. acres)	
	Jowar	Wheat	Others		
	33.2	3.7	8.1	7.0	15.6

**15. (a) Proposed pattern of irrigated cultivation**

Perennial			Two seasonal		Kharif		Continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
Sugarcane	Others		Others		Others		
8.0	2.0	1.5	16.0	2.4	18.0	2.7	

Continued from above	Rabi		Hot weather		Grand Total (T. acres)
	Percentage of principal crops		Percentage of principal crops		
	Total area (T. acres)		Total area (T. acres)		
	Others		Others		
	50.0	7.5	6.0	0.9	15.0



## (b) Are there any rules for regulating crop pattern ?

No, but sanctions will be regulated so as to conform to the proposed crop pattern

**16. Duty and Delta at distributary head (as anticipated)**

<i>Duty</i> (acres per mean cusec)			<i>Delta</i> (feet)			
<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Total</i>
118	149	64	2.1	1.6	3.7	7.4

Overall delta of canal head 3.5 feet

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

## (b) Not applicable

**18. Quantum of river supplies available in relation to withdrawals**

River discharge data not available

**19. to 21. Not available****GENERAL****22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. Extent and type of area submerged by reservoir**

Government waste lands 380 acres

Garden lands 380 „

Culturable area 1,090 „

The entire submerged area lies in Maharashtra

**24. Total cost of the scheme** Rs. 170 lakhs

**25. Financial return of the scheme** 2.58 percent

**26. Cost per acre irrigated** Rs. 1,133

**27.** Not applicable

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

## TULSHI PROJECT

15C.2-K.1-M.5

1. **Name of State** Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**  
Irrigation and water supply ; flow-cum-storage ; C. C. A by flow 11,200 acres, by lift 3,200 acres, total 14,400 acres
3. **Source of supply**  
Tulshi/Bhogavati/Panchganga/Krishna  
Utilisation upstream : nil
4. **Description of the reservoir or tank**

Live storage	3.40 T. M. C.
Dead storage	0.40 "
Carry-over	0.40 "
Annual reservoir losses	0.50 "
Filling period	15th June to 30th September
Depletion period	15th June to 14th June
Catchment area	35 square miles
Area submerged	2,700 acres
Full reservoir level	R. L. 1,940
Minimum pond level	R. L. 1,870
5. **Description of the headworks**

Dam :	masonry, 5,280 feet long , 120 feet high
Spillway :	masonry, ungated, capacity 39,600 cusecs
Outlets :	two, one on right and the other on left, with capacity 210 and 60 cusecs respectively
6. **Description of the canals**

Tulshi Right Bank Canal (contour) ; 20 miles long ; perennial ; lined ; authorised capacity 180 cusecs
Tulshi Left Bank Canal (contour) ; 8 miles long ; perennial ; lined ; authorised capacity 60 cusecs
7. (a) **Nature of investigations carried out up-to-date**  
Preliminary investigations completed ; project report under preparation  
(b) **Actual or probable date of beginning of construction** III Plan
8. **Not available**

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

District Kolhapur

	<i>Right Bank Canal</i>	<i>Left Bank Canal</i>	<i>Total</i>	<i>From Kolhapur type weir on Bhogavati river by lift of 50 feet</i>	<i>Total</i>
<i>..... thousand acres .....</i>					
G. C. A.	9.8	4.2	14.0	4.0	18.0
C. C. A.	7.9	3.4	11.3	3.2	14.5
Deduct area under well irrigation			0.1		0.1
Net C.C.A.			11.2	3.2	14.4

A small part of the C. C. A. on the Right Bank Canal (not exceeding about 1,000 acres is already irrigated by lift as part of Radhanagari project (6B-K.1-M.1)

## 10. Area proposed to be irrigated annually and intensity of irrigation

	<i>Area proposed to be irrigated</i>		<i>Intensity of irrigation</i>	
Perennial	2,300	acres	20.5	percent
Two seasonal	400	"	3.6	"
<i>Kharif</i>	4,200	"	37.5	"
<i>Rabi</i>	400	"	3.6	"
Hot weather	400	"	3.6	"
<b>Total</b>	<b>7,700</b>	<b>"</b>	<b>68.8</b>	<b>"</b>
By lift irrigation	2,000	"	62.5	"

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted				Capacity factor on flow diverted
	Normal	Maximum	Minimum	Flow	Lift	Kolhapur water supply	Total	
	..... inches.....			..... T. M. C.....				
June	16.0	38.1	1.1					
July	40.0	38.2	5.7	15th June to 14th Oct.				
August	25.0	49.6	8.5	0.21	—	—	0.21	0.08
September	10.0	22.9	1.1					
October	6.0	17.0	0.6					
November	1.3	14.2	Nil	15th Oct. to 14th Feb.				
December	0.2	3.6	,,	0.70	0.40	0.30	1.40	0.55
January	0.1	0.9	,,					
February	0.1	1.5	,,					
March	0.2	1.9	,,	15th Feb. to 14th June				
April	1.0	5.1	,,	0.60	0.40	0.30	1.30	0.52
May	2.0	6.4	,,					
Total	101.9						2.91	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 20 percent ; silt loam to clay loam 20 percent and clay loam to clay 60 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No.

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial				Two seasonal				Continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)			
Sugarcane	Others		Cotton	Others				
9.8	0.1	1.4	0.1	2.0	0.3			

Continued from above	Kharif				Rabi				Total cropped area (T. acres)
	Percentage of principal crops				Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
	Paddy	Jowar	Groundnut	Others		Wheat	Jowar		
	30.2	8.3	6.5	41.1	12.4	1.6	0.3	0.3	

15. (a) Proposed pattern of irrigated cultivation

Perennial			Two seasonal		Kharif		Continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Percentage of principal crops		
Sugarcane	Others		Others	Total area (T. acres)	Paddy	Total area (T. acres)	
For Flow Irrigation							
25.0	5.0	2.3	5.0	0.4	55.0	4.2	
For Lift Irrigation							
100.0	—	2.0					

Continued from above	Rabi		Hot weather		Grand Total (T. acres)
	Percentage of principal crops		Percentage of principal crops		
	Total area (T. acres)		Total area T. acres)		
	Wheat	Others	Wheat	Others	
For Flow Irrigation					
	5.0	0.4	5.0	0.4	7.7
For Lift Irrigation					
					2.0

## (b) Are there any rules for regulating crop pattern ?

No; but sanctions will be regulated so as to conform to the proposed crop pattern

## 16. Duty and Delta at canal head (as anticipated)

<i>Duty</i> (acres per mean cusec)			<i>Delta</i> (feet)			
<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Overall</i>
350	120	50	0.7	2.0	4.8	6.9

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

## (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

30 wells, irrigating about 60 acres of seasonal crop, area is excluded from the C. C. A.

## 18. Quantum of river supplies available in relation to withdrawals

River supply data not available

## 19. to 21. Not applicable

## GENERAL

## 22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Water supply to Kolhapur Town 0.6 T. M. C.

## 23. Extent and type of area submerged by reservoir

Area submerged : culturable 2,200 acres ; waste 500 acres

The entire submergence lies in Maharashtra

## 24. to 26. Not available

## 27. Not applicable

## 28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

# KUKDI PROJECT—STAGE I

16C.2-K.5-M.6

1. Name of State Maharashtra (formerly in Bombay)

2. Scope of the scheme or system

Irrigation; flow-cum-storage; C. C. A. 129, 700 acres

3. Source of supply

Ghod at Chinchani/Bhima/Krishna

Mina at Wadgaon/Ghod/Bhima/Krishna

Kukdi at Kandli/Ghod/Bhima/Krishna

Ar at Bhoirwadi/Pushpawati/Kukdi/Ghod/Bhima/Krishna

Upstream utilisation, negligible

4. Description of the reservoir or tank

	<i>Chinchani on Ghod</i>	<i>Wadgaon on Mina</i>	<i>Kandli on Kukdi</i>	<i>Bhoirwadi on Ar</i>
Live storage (T. M. C.)	Same as per	3.00	0.90	0.80
Dead storage (T. M. C.)	7B-K.5-M.2	0.30	0.10	0.20
Carry-over (T. M. C.)		Nil	Nil	Nil
Annual reservoir losses (T. M. C.)		0.50	0.10	0.10
Filling period		15th June to end of September		
Depletion period		15th June to 14th June		
Catchment area (square miles)		78	288	35
Area submerged (acres)		2,300	250	1,800
Full reservoir level R. L.		2,278	2,068	2,254
Minimum pond level R. L.		2,230	2,057	2,242

5. Description of the head works

	<i>Chinchani on Ghod</i>	<i>Wadgaon on Mina</i>	<i>Kandli on Kukdi</i>	<i>Bhoirwadi on Ar</i>
Dam:	Same as per 7B-K.5-M.2	earthen, 7,000 feet long, 120 feet high	masonry with earthen flanks, 1,000 feet long, 30 feet high	earthen, 2,600 feet long, 44 feet high

	<i>Chinchani on Ghod</i>	<i>Wadgaon on Mina</i>	<i>Kandli on Kukdi</i>	<i>Bhoirwadi on Ar</i>
Spillway :		ogee, gated, capacity 60,000 cusecs	submerged, ungated, capacity 119,000 cusecs	submerged, ungated, capacity 39,200 cusecs
Outlets :		river outlet, capacity 40 cusecs, head regulator left flank, capacity 150 cusecs.	head regu- lator, left flank, capacity 2,400 cusecs.	river outlet, capacity 50 cusecs.

#### 6. Description of the canals

Mina Link Canal (contour); left bank; 13 miles long (with branch partly contour and partly ridge 12 miles long); perennial; unlined; authorised capacity 600 cusecs

Kandli Canal (contour); left bank; 60 miles long; perennial; unlined; authorised capacity 1,812 cusecs

#### 7. (a) Nature of investigations carried out up-to-date

Preliminary investigations completed, project report under preparation

#### (b) Actual or probable date of beginning of construction

III Plan

#### 8. Not available

### IRRIGATION ASPECTS

#### 9. Gross commanded area and culturable commanded area, district-wise

Item	Names of districts				Grand Total
	Mina Link Canal	Kandli Canal			
	Poona	Poona	Ahmednagar	Total	
.....thousand acres.....					
G. C. A.	67.0	33.0	80.0	113.0	180.0
C. C. A.	53.0	27.4	34.9	82.3	135.3
Deduct area under bandhara and wells	4.0			1.6	5.6
Net C. C. A.	49.0			80.7	129.7

# 10. Area proposed to be irrigated annually and intensity of irrigation

(i)

	<i>Mina Link Canal</i>		<i>Kandli Canal</i>		<i>Total area (T. acres)</i>
	<i>Area proposed to be irrigated (T. acres)</i>	<i>Intensity of irrigation (percent)</i>	<i>Area proposed to be irrigated (T. acres)</i>	<i>Intensity of irrigation (percent)</i>	
Paddy	4.5	9.2	24.8	30.8	29.3
Kharif	18.1	36.9	—	—	18.1
Rabi	27.2	55.5	48.2	59.7	75.4
<b>Total</b>	<b>49.8</b>	<b>101.6</b>	<b>73.0</b>	<b>90.5</b>	<b>122.8</b>

(ii) Stepping up crop pattern on Ghod Canals ex-Chinchani (sugarcane in place of equal acreage of two seasonal)

8,000 acres

# 11. Normal rainfall and river supply proposed to be diverted

(i) Mina Link Canal

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
	<i>.....inches.....</i>			<i>.....T.M.C.....</i>	
June	4.5	10.8	0.4	15th June to 14th October	
July	3.0	10.5	Nil	1.80	0.28
August	3.5	8.3	0.1		
September	5.1	16.7	0.1		
October	2.7	13.4	Nil	15th October to 14th February	
November	1.2	7.4	„	1.70	0.27
December	0.3	4.6	„		
January	0.1	1.9	„		
February	0.1	1.6	„	15th February to 14th June	
March	0.1	1.4	„	Nil	—
April	0.4	4.1	„		
May	0.9	9.1	„		
<b>Total</b>	<b>21.9</b>			<b>3.50</b>	



## (ii) Kandli Canal and Ghod Canal

Month	Rainfall			River supply proposed to be diverted		Capacity factor
	Normal	Maximum	Minimum	Kandli Canal	Additional on Ghod canal	
	.....inches.....			.....T.M.C. ....		
June	4.0	10.9	0.1	15th June to 14th October		
July	2.9	9.6	0.3	4.60	1.20	0.42
August	2.8	10.9	0.2			
September	5.8	13.9	Nil	15th October to 14th February		
October	2.7	9.4	,,	4.70	1.30	0.43
November	1.1	9.9	,,			
December	0.2	4.3	,,			
January	0.2	2.5	,,	15th February to 14th June		
February	0.1	0.7	,,	Nil	2.10	0.15
March	0.1	1.8	,,			
April	0.4	8.0	,,			
May	0.8	4.5	,,			
<b>Total</b>	<b>21.1</b>			<b>9.30</b>	<b>4.60</b>	

Total for all three canals—

17.4 T.M.C.

12. - 13. Not available

## 14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial		Two seasonal				Kharif							Continued below
Percentage of principal crops		Percentage of principal crops		Total area (T. acres)	Percentage of principal crops							Total area (T. acres)	
Sugarcane	Others	Cotton	Others		Paddy	Jowar	Bajri	Pulses	Groundnut	Others			
Mina Link Canal													
0.5	0.4	0.5	0.2	2.2	1.3	2.4	2.3	31.2	6.5	3.5	1.5	25.0	
Kandli Canal													
0.2	—	0.2	0.8	1.3	1.7	0.4	0.1	13.6	10.6	1.1	0.2	21.4	
Continued from above	Rabi				Total area (T. acres)	Other crops				Total area (T. acres)	Total cropped area (T. acres)		
	Percentage of principal crops					Percentage of principal crops							
	Wheat	Jowar	Gram	Others		Fodder	Gram						
Mina Link Canal													
3.2	31.6	2.9	4.6	22.5	1.1			5.9			3.7	53.0	
Kandli Canal													
1.9	58.2	1.5	7.4	56.8	0.2			2.5			2.2	82.3	
												135.3	

## 15. (a) Proposed pattern of irrigated cultivation

Kharif			Rabi			Grand Total (T. acres)
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
Paddy	Others		Wheat	Jowar		
Mina Link Canal						
9.1	36.4	22.6	9.1	45.4	27.2	49.8
Kandli Canal						
34.0	—	24.8	66.0	—	48.2	73.0
Total		47.4			75.4	122.8

and stepping up crop-pattern on Ghod canals ex-Chinchani (sugarcane in place of equal acreage of two seasonal) 8000 acres

## (b) Are there any rules for regulating crop pattern ?

No; but sanctions will be regulated so as to conform to the proposed crop-pattern

## 16. Duty and Delta at canal head (as anticipated)

	Duty (acres per mean cusec)		Delta (feet)		
	Kharif	Rabi	Kharif	Rabi	Overall
Mina Link Canal	136	367	1.8	1.2	1.6
Kandli Canal	56	166	4.3	1.5	2.9

## 17 (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

One bandhara, irrigating about 4,000 acres, excluded from the C. C. A.

## (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

There are about 810 wells in the commanded area capable of irrigating about 1,600 acres of seasonal crops; the area under wells is excluded from the C. C. A.

## 18. Quantum of river supplies available in relation to withdrawals

The average river supplies available exceed proposed diversion

## 19. to 21. Not applicable

## GENERAL

## 22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

**23. Extent and type of area submerged by reservoir**

	<i>Wadgaon on Minca</i>	<i>Kandli on Kukdi</i>	<i>Bhoirwadi on Ar</i>
Culturable (acres)	1,600	170	1,250
Forest „	—	—	—
Waste „	700	80	550
Total „	2,300	250	1,800

Entire submergence is in Maharashtra

**24. Total cost of the scheme** Rs. 6.87 lakhs

**25. Financial return of the scheme** 2.27 percent

**26. Cost per acre irrigated** Rs. 560

**27.** Not applicable

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture



## MALAPRABHA IRRIGATION SCHEME

10C.2-K.4-My.1

1. **Name of State** Mysore (formerly in Bombay)
2. **Scope of the scheme or system**  
Irrigation scheme ; flow-cum-storage ; Ayacut 300,000 acres
3. **Source of supply**  
Malaprabha at Manoli/Krishna  
Utilisation upstream :  
existing: minor irrigation works  
proposed : 11 C.1-K.4-My.1, 49C.3-K.4-My.6 and 50C.3-K.4-My.7
4. **Description of the reservoir or tank**

Live storage	18.94 T.M.C.
Dead storage	7.13 „
Carry-over	Nil
Annual reservoir losses	6.11 T.M.C.
Filling period	July to October
Depletion period	June to February
Catchment area	840 square miles
Area submerged	25,851 acres
Full reservoir level	R.L. 2,070
Minimum pond level	R.L. 2,045
5. **Description of the headworks**

Dam :	masonry, 441 feet long, 127 feet high
Spillway :	4 gates, 60 feet x 29 feet, capacity 185,000 cusecs
River sluices :	4 vents, 6 feet x 9 feet each, capacity 1,800 cusecs
Head regulator :	(in the foreshore) 4 vents, 10 feet x 12 feet each
6. **Description of the canal**  
Malaprabha Canal (contour) ; right bank ; 120 miles long (branches 42 miles); two-seasonal unlined; authorised capacity 2,200 cusecs
7. (a) **Nature of investigations carried out up-to-date** . Project report ready  
(b) **Actual or probable date of beginning of construction**  
Preliminary works started in October 1960
8. **Probable date of beginning of operation**  
1965 (if project is sanctioned during 1961-62)

## IRRIGATION ASPECTS

## 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

Item	Names of districts			Total
	Dharwar	Belgaum	Bijapur	
	.....thousand acres.....			
G.C.A.	466.0	29.0	5.0	500.0
C.C.A.	372.8	23.2	4.0	400.0
Ayacut	279.6	17.4	3.0	300.0

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated		Intensity of irrigation on Ayacut	
Two seasonal	45,000	acres	15.0	percent
Kharij	90,000	„	30.0	„
Rabi	165,000	„	55.0	„
Total	300,000	„	100.0	„

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
1	2	3	4	5	6
.....inches.....			...T. M. C....		
June	3.0	4.0	1.0	1.40	0.25
July	3.0	8.3	1.1	2.90	0.49
August	3.0	5.4	0.6	2.90	0.49
September	5.5	11.3	3.0	2.80	0.49
October	4.0	11.4	Nil	4.30	0.73
November	1.6	3.8	„	4.80	0.84
December	0.3	1.2	„	4.90	0.83
January	0.1	1.1	„	4.90	0.83
February	0.1	0.4	„	2.00	0.38
March	0.3	0.3	„	Nil	—
April	1.3	2.1	0.1	„	—
May	2.3	5.5	0.5	„	—
Total	24.5			30.90	

12. Not available

**13. (a) Characteristics of soils in the commanded area**

Shallow to deep soils, pale grey to deep black, with lime nodules (no scientific soil survey has been carried out)

**(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?**

No

**14. Existing pattern of cultivation in the area proposed to be irrigate**

Kharif			Rabi				Total cropped area (T. acres)	
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops					Total area (T. acres)
Jowar	Groundnut		Jowar	Wheat	Cotton	Others		
14	8	66.0	15	9	24	30		234.0
							300.0	

**15. (a) Proposed pattern of irrigated cultivation**

Two seasonal		Kharif		Rabi			Grand Total (T. acres)	
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops				Total area (T. acres)
Onions, tumeric etc		Jowar, oil seeds etc.		Jowar	Cotton	Wheat		
15	45	30	90	30	15	10	165	300.0

**(b) Are there any rules for regulating crop pattern ?**

Legislation is under consideration

**16. Duty and Delta at canal head (as anticipated)**

<i>Duty (acres per mean cusec)</i>			<i>Delta (feet)</i>			
<i>Two seasonal</i>	<i>Kharif</i>	<i>Rabi</i>	<i>Two seasonal</i>	<i>Kharif</i>	<i>Rabi</i>	<i>Overall</i>
115	150	120	4.2	1.8	2.0	2.4

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

**(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

62 wells, irrigating about 104 acres (not included in the Ayacut)

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available ; storage provided appears to be insufficient for post-monsoon requirements

19. to 21. Not applicable

## GENERAL

22. **Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Drinking water supply to Savadatti town, 0.34 T. M.C. annually. It is proposed to install penstocks for development of power (seasonal) at some future date

23. **Extent and type of area submerged by reservoir**

25,851 acres ; major portion being cultivated land

24. **Total cost of the scheme** Rs. 20,00 lakhs (1960)

25. **Financial return of the scheme** 1.4 percent

26. **Cost per acre irrigated** Rs. 667

27. Not applicable

28. **Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture



# UPPER KRISHNA PROJECT - STAGE I

11C.2-K.2-My.2

1. Name of State Mysore (formerly in Bombay and Hyderabad)

2. Scope of the scheme or system

Irrigation scheme; flow-cum-storage; Ayacut 533,000 acres

3. Source of supply

Krishna at (i) Almatti and (ii) Narayanpur (40 miles downstream of Almatti)

Considerable uses upstream

4. Description of the reservoir or tank

	<i>Almatti</i>	<i>Narayanpur</i>
Live storage (T. M. C.)	22.26	42.80
Dead storage (T. M. C.)	9.17	3.16
Carry-over (T. M. C.)	2.44	12.35
Annual reservoir losses (T. M. C.)	10.06	7.17
Filling period	July to Oct.	July to Oct.
Depletion period	June to May	June to May
Catchment area (square miles)	13,871	18,521 (inclusive of 13,871)
Area submerged (acres)	43,265	38,580
Full reservoir level R.L.	1,679	1,608
Minimum pond level R.L.	1,663	1,558

5. Description of the headworks

	<i>Almatti</i>	<i>Narayanpur</i>
Dam :	masonry, 4,505 feet long, 96 feet high	earthen on sides 31,200 feet long, masonry for spillway portion, 2,800 feet long, 133 feet high
Spillway :	3,596 feet long, capacity 735,300 cusecs	2,800 feet long, capacity 837,300 cusecs
River sluices :	twelve, 8 feet x 10 feet, capacity 43,000 cusecs	twelve, 8 feet x 10 feet, capacity 51,708 cusecs
Head regulator :	size not yet determined	size not yet determined



## 6. Description of the canals

<i>Almatti</i>	<i>Narayanpur</i>
Almatti Left Bank Canal (contour); 106 miles long (branches 54 miles); perennial; unlined; authorised capacity <b>1,700 cusecs</b>	Narayanpur Left Bank Canal (contour); 69 miles long (branches 72 miles); perennial; unlined; authorised capacity <b>3,000 cusecs</b>

## 7. (a) Nature of investigations carried out up-to-date

Project estimate submitted for sanction

(b) Actual or probable date of beginning of construction 1962-63

8. Probable date of beginning of operation 1966-67

## IRRIGATION ASPECTS

## 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

<i>Districts</i>	<i>Almatti Left Bank Canal</i>		<i>Narayanpur Left Bank Canal</i>	<i>Total</i>
	<i>Bijapur</i>	<i>Gulbarga</i>	<i>Gulbarga</i>	
	<i>thousand acres</i>			
G. C. A.	227.0	50.0	575.0	852.0
C. C. A.	204.0	40.0	460.0	704.0
Ayacut	158.0	30.0	345.0	533.0

## 10. Area proposed to be irrigated annually and intensity of irrigation

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
Perennial	37,300 acres	7.0 percent
Two seasonal	26,600 „	5.0 „
<i>Kharif</i>	229,200 „	43.0 „
<i>Rabi</i>	239,900 „	45.0 „
<b>Total</b>	<b>533,000 „</b>	<b>100.0 „</b>

Note : Also proposed manurial corps in the entire irrigated area with light waterings, during the months of April and May

**11. Normal rainfall and river supply proposed to be diverted**

Month	Rainfall					River supply proposed to be diverted		Capacity factor	
	Normal	Maximum		Minimum		Alamatti	Narayan- pur	Alamatti	Narayan- anpur
		Alamatti	Narayan- pur	Alamatti	Narayan- anpur				
..... inches.....					..... T. M. C. ....				
June	3.5	5.5	15.1	0.8	2.1	2.94	5.39	0.67	0.69
July	4.0	11.9	11.2	1.3	0.8	4.17	7.66	0.92	0.95
August	4.0	8.7	6.8	1.0	0.6	3.40	6.24	0.75	0.78
September	6.5	11.6	7.5	1.5	2.1	4.23	7.77	0.96	1.00
October	3.0	7.4	9.2	1.3	2.0	3.64	6.90	0.80	0.86
November	1.3	3.7	4.9	Nil	Nil	3.25	5.97	0.74	0.77
December	0.2	0.8	1.5	,,	,,	2.64	4.84	0.58	0.60
January	0.2	0.4	Nil	,,	,,	2.67	4.91	0.59	0.61
February	0.3	0.5	0.7	,,	,,	2.37	4.34	0.58	0.60
March	0.3	0.8	0.9	,,	,,	0.66	1.20	0.14	0.15
April	0.8	1.6	0.9	,,	0.1	0.59	1.08	0.13	0.14
May	1.3	4.2	4.6	0.1	0.4	1.98	3.64	0.43	0.45
Total	25.4					32.54	59.94		

Total for both canals      92.48 T. M. C.

12.                      Not available

**13. (a) Characteristics of soils in the commanded area**

Shallow to medium and deep black soil derived from trap rocks; depth of black soil varies from a few inches in uplands to several feet in valleys; also present are red soils, of shallow to medium depth, well drained sandy to sandy loam in texture (no scientific soil survey done)

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

**14. Existing pattern of cultivation in the area proposed to be irrigated**

Kharif			Rabi		Total cropped area (T. acres)
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		
Jowar	Groundnut		Cotton	Millets	
25.0	30.0	293.2	25.0	20.0	239.8
					533.0

## 15. (a) Proposed pattern of irrigated cultivation

Perennial			Two seasonal		Continued below	
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops			Total area (T. acres)
Sugarcane	Others		Garden, Onions etc.			
5.0	2.0	37.3	5.0	26.6		

Continued from above	Kharif			Rabi			Grand Total (T. acres)
	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
	Paddy	Jowar, oil- seed etc.		Jowar	Cotton		
	18.0	25.0	229.2	25.0	10.0	10.0	239.9

Note : Also proposed are manurial crops in the entire irrigated area with light waterings during April and May

(b) Are there any rules for regulating crop pattern ?      Legislation is under consideration

## 16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)						Continued below
Perennial		Two seasonal	Kharif		Rabi	
Sugarcane	Others	Garden	Paddy	Others		
60	150	100	50	150	120	

Continued from above	Delta (feet)						
	Perennial		Two seasonal	Kharif		Rabi	Overall .
	Sugarcane	Others	Garden	Paddy	Others		
	12.2	4.8	4.9	5.4	1.8	2.3	4.0

Note : Manurial crops; Duty 300 and Delta 0.2 feet

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

86 tanks, irrigating about 2,900 acres, area excluded from the Ayacut

## (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

1,487 wells, irrigating about 5,800 acres, area excluded from the Ayacut

## 18. Quantum of river supplies available in relation to withdrawals

River supply data not available

## 19. to 21.      Not applicable

## GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil, it is proposed to install penstocks for development of hydro-power in future

23. Extent and type of area submerged by reservoir

43,265 acres in Alamatti reservoir, of which 24,000 acres is cultivated, rest fallow

38,580 acres in Narayanpur reservoir of which 22,100 acres is cultivated, rest fallow

24. Total cost of the scheme Rs. 56,00 lakhs

25. Financial return of the scheme 2.0 percent

26. Cost per acre irrigated Rs. 1,051

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture



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**Section 3**  
**Particulars of major and medium Projects**  
**(ii) not included in III Plan**

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# UPPER KRISHNA PROJECT (Extension to Andhra Pradesh)

1C.3-K.2-A.1

## 1. Name of State

Andhra Pradesh (formerly in Hyderabad ), jointly with Mysore

## 2. Scope of the scheme or system

Irrigation scheme; flow-cum-storage; additional Ayacut (in Andhra Pradesh) 150,000 acres

## 3. to 5. As in 11 C.2-K.2-My.2

## 6. Description of the canals

Extension of Narayanpur Right Bank Canal 45 C.3-K.2-My.2 into Andhra Pradesh with appropriate modifications in alignment and capacity to command Gadwal and Alampur talukas of Mahbubnagar district.

## 7. (a) Nature of investigations carried out up-to-date

Some investigations were carried out in 1932. Fresh Project Report will have to be prepared.

## (b) Actual or probable date of beginning of construction

IV Plan

## \*8. Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

Areas in Andhra Pradesh only

District Mahbubnagar

G. C. A. 232,000 acres

C. C. A. 185,000 "

Ayacut 150,000 "

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	Intensity of irrigation on Ayacut
Perennial	25,000 acres	16.7 percent
Kharif	125,000 "	83.3 "
Rabi	30,000 "	20.0 "
Total	180,000 "	120.0 "

## Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			.....T.M.C.....	
June	3.6	7.4	0.9	6.23	0.72
July	4.7	17.5	1.8	7.45	0.83
August	4.4	12.5	2.2	7.45	0.83
September	6.2	14.2	0.9	7.20	0.83
October	3.1	10.7	0.7	7.45	0.83
November	1.2	3.5	Nil	7.20	0.83
December	0.1	0.2	,,	0.75	0.08
January	0.1	Nil	,,	2.76	0.31
February	0.3	1.1	,,	2.49	0.31
March	0.1	0.9	,,	2.76	0.31
April	0.6	1.0	,,	2.66	0.31
May	1.1	4.4	,,	Nil	—
<b>Total</b>	<b>25.5</b>			<b>54.40*</b>	

\*At Mysore-Andhra Pradesh border

12. Not available

13. (a) Characteristics of soil in the command area

Sandy loam

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif					Rabi			Total cropped area (T. acres)
Percentage of principal crops				Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
Jowar	Bajra	Ragi	Others		Pulses	Oil seeds		
28.6	4.8	3.8	22.8	63.0	12.3	27.7	42.0	105.0

**15. Proposed pattern of irrigated cultivation**

<i>Perennial</i>		<i>Abi</i>		<i>Tabi</i>		<i>Grand Total (T. acres)</i>
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	
<i>Sugarcane</i>		<i>Paddy</i>		<i>Paddy</i>		
13.9	25.0	69.4	125.0	16.7	30.0	180.0

(b) Are there any rules for regulating crop pattern ?

Areas will be localised

**16 Duty and Delta at canal head (as anticipated)**

<i>Duty (acres per mean cusec)</i>			<i>Delta (feet)</i>			
<i>Perennial</i>	<i>Abi</i>	<i>Tabi</i>	<i>Perennial</i>	<i>Abi</i>	<i>Tabi</i>	<i>Overall</i>
90	50	40	7.3	6.7	6.0	6.9

17 (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Not available

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

19. to 21. Not applicable

**GENERAL**

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

Nil

24. to 26. Not available

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture



# SANGAMESWARAM CANAL SCHEME

2C.3-K.7-A.2

1. **Name of State** Andhra Pradesh (formerly in Madras)
2. **Scope of the scheme or system**  
Irrigation scheme ; flow-cum-storage ; Ayacut 358,500 acres
3. **Source of supply**  
Krishna at Sangameswaram, from the reservoir to be created by the Srisailem Dam  
Considerable utilisation upstream
4. **Description of the reservoir or tank**  
Same as under 1C.2-K.7-A.1
5. **Description of the headworks**  
Head regulator with 14 vents, 10 feet x 20 feet each, total capacity 28,000 cusecs,  
cill level of vents R. L. 850
6. **Description of the canals**  
The Bhavanasi river will be regarded and the canal will be taken through Mittakondala cutting. Then it will be let into Nippulavagu and 6.6 miles downstream a diversion anicut will be constructed at Vempenta, from where two branches the Right Branch and the Left Branch will take off  
Particulars of anicut not available  
Sangameswaram Main Canal (ridge); right bank; 6.6 miles long (branches 192 miles); one seasonal; lined; capacity 5,350 cusecs
7. (a) **Nature of investigations carried out up-to-date**  
Alignment of the canal was investigated in 1950. Fresh field investigations will be undertaken in due course
- (b) **Actual or probable date of beginning of construction** IV Plan
8. Not available

## IRRIGATION ASPECTS

### 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

Item	Names of districts		Grand Total
	Kurnool	Cuddapah	
	.....thousand acres.....		
G. C. A.	712.8	212.3	925.1
C. C. A.	572.5	140.5	713.0
Ayacut	287.9	70.6	358.5

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	Intensity of irrigation on Ayacut
<i>Kharif</i>	358,500 acres	100.0 percent

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			.....T. M. C.....	
June	3.1	6.6	0.1	0.48	0.03
July	4.0	9.4	1.4	12.62	0.88
August	5.5	15.1	1.1	14.90	1.04
September	6.3	15.0	1.2	7.06	0.51
October	4.0	9.8	1.3	2.77	0.19
November	1.5	5.4	Nil	2.35	0.17
December	0.3	0.4	"	0.71	0.05
January	0.1	0.1	"	Nil	—
February	0.2	0.2	"	"	—
March	0.2	0.4	"	"	—
April	0.8	2.2	"	"	—
May	1.5	18.3	"	"	—
Total	27.5			40.89	

## 12. Not available

## 13 (a) Characteristics of soils in the commanded area

Clayey loams

## (b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

## 14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif					Total cropped area (T.acres)
Percentage of principal crops					
Jowar	Bajra	Groundnut	Cotton	Others	
23.6	15.0	14.5	7.3	39.6	270.0
88,500 acres uncultivated land					

## 15. (a) Proposed pattern of irrigated cultivation

Kharif			Total area (T. acres)
Percentage of principal crops			
Paddy	Jowar	Bajra	
33.0	54.0	13.0	358.5

## (b) Are there any rules for regulating crop pattern?

Wet and dry areas will be localised

**16. Duty and Delta at canal head (as anticipated)**

<i>Duty</i> (acres per mean cusec)	<i>Delta</i> (feet)
<i>Kharif</i>	<i>Kharif</i>

1/3 wet and 2/3 dry

126

2.6

**17.(a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**  
Nil**(b)** Not available**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available. The canal withdrawals in June to December will be from Srisailem storage.

**19. to 21.** Not applicable**GENERAL****22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

**23.** Not applicable**24. Total cost of the scheme** Rs. 12,88 lakhs (1955)**25. Financial return of the scheme** 4.24 percent**26. Cost per acre irrigated** Rs. 360**27.** Not applicable**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture, reclamation of un-cultivated lands.

**29. Special features of the scheme**

The entire irrigation lies outside the Krishna drainage basin

**SANGAMESWARAM CANAL SCHEME-STAGE II****3C.3-K.7-A.3**

1. **Name of State**                      Andhra Pradesh (formerly in Madras)
2. **Scope of the scheme or system**  
Irrigation scheme ; flow-cum-storage ; additional Ayacut 720,000 acres
3. **Source of supply**  
(i) **Krishna River** at Sangameswaram and (ii) **Pennar river** at Somasila ;  
considerable utilisation upstream on both rivers
4. **Description of the reservoir or tank**  
Srisaillam reservoir as in **1C.2-K.7-A.1** and Somasila on the Pennar to the following particulars :

Live storage	118.40 T.M.C.
Dead storage	0.40 T.M.C.
Carry-over	Nil
Annual reservoir losses	11.90 T.M.C.
Filling period	June to October-after Nagarjunasagar and Srisaillam reservoirs have filled
Depletion period	June to December
Area submerged	76,800 acres
Full reservoir level	R.L. 345
Minimum pond level	R.L. 234
5. **Description of the headworks**

Dam	:	earthen, 2,597 feet long, 135 feet high
Spillway	:	667 feet long, 8 vents, 41 feet x 40 feet, total capacity 84,750 cusecs
Outlets	:	16 river sluices, 10 feet x 12 feet each, total capacity 120,960 cusecs
Barrage on the Pennar	:	about 2 miles below Somasila reservoir
	:	36 gates, 40 feet x 10 feet, 2,090 feet long, capacity 500,000 cusecs
Under sluices	:	5 vents, 20 feet x 10 feet
Regulators	:	9 vents, 20 feet x 10 feet
6. **Description of the canals**  
(1) Capacity of Sangameswaram Main Canal (see **2C.3-K.7-A.2**) to be increased from 5,350 cusecs to 27,000 cusecs - supplies from the tail of the canal will flow by natural channels into the reservoir

(2) Nellore South Canal (contour) ; right bank ; unlined ; one seasonal ; authorised capacity 10,000 cusecs

**7. (a) Nature of investigations carried out up-to-date**

Investigations of canals is not fully completed but investigations of dam completed and part project report ready

**(b) Actual or probable date of beginning of construction**

IV Plan

8. Not available

**IRRIGATION ASPECTS**

**9. Gross commanded area, culturable commanded area and Ayacut, district-wise**

Nellore South Canal (additional over Stage I)

District Nellore

G.C.A.	1,200,000	acres
C.C.A.	960,000	"
Ayacut	720,000	"

**10. Area proposed to be irrigated annually and intensity of irrigation**

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
<i>Kharif</i>	720,000 acres	100.0 percent

**11. Normal rainfall and river supply proposed to be diverted (additional over Stage I)**

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
	<i>.....inches.....</i>			<i>.....T. M. C. ....</i>	
June	1.4	3.2	Nil	Monthly	Not available
July	2.2	7.9	1.5	distribution	
August	3.0	7.0	1.1	not	
September	3.5	7.6	1.7	available	
October	8.8	34.3	1.9		
November	10.8	23.3	0.9		
December	3.4	9.9	Nil		
January	1.2	11.3	"		
February	0.3	2.8	"		
March	0.2	0.7	"		
April	0.5	1.2	"		
May	1.1	11.1	"		
<b>Total</b>	<b>36.4</b>			<b>120.00</b>	

12. Not available

13. (a) Characteristics of soils in the commanded area

Alluvial soils and sandy loams

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

<i>Kharif</i>					<i>Total cropped area (T. acres)</i>
<i>Percentage of principal crops</i>					
<i>Paddy</i>	<i>Jowar</i>	<i>Ragi</i>	<i>Bajra</i>	<i>Others</i>	
5.0	28.0	6.0	7.0	54.0	494.0

226,000 acres uncultivated land

15. (a) Proposed pattern of irrigated cultivation

<i>Abi</i>	
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>
<i>Paddy</i>	
100.0	720.0

(b) Are there any rules for regulating crop pattern ?

No

16. Duty and Delta at canal head (as anticipated)

<i>Duty (acres per mean cusec)</i>	<i>Delta (feet)</i>
<i>Abi</i>	<i>Abi</i>
82	3.8

17.-18. Not available

19. to 21. Not applicable

#### GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Possibility of power development being investigated, proposed reservoir at Somasila will act as a flood moderator for Pennar flows

**23. Extent and type of area submerged by reservoir**

Total submergence 76,800 acres in Andhra Pradesh (wet land 7,500 acres, dry land 31,200 acres, garden 2,400 acres, other land 35,700 acres)

24. to 26. Not available

27. Not applicable

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture, reclamation of uncultivated areas, flood moderation on the Pennar

**29. Special features of the scheme**

The entire irrigation lies outside the Krishna drainage basin



1. **Name of State** Andhra Pradesh (formerly in Hyderabad and Madras)

2. **Scope of the scheme or system**

Multipurpose scheme ; flow-cum-storage ; irrigation, additional Ayacut 1,326,000 acres ; additional power, 4 units of 110,000 k.W., each at Srisaillam and 6 units of 50,000 k.W., each at Nagarjunasagar, all for seasonal (6 months) power.

3. **Source of supply**

**Krishna** at Srisaillam and Nandikonda

Considerable utilisation upstream

4. **Description of the reservoir or tank**

Srisaillam reservoir as under **10.2-K.7-A.1**. Nagarjunasagar reservoir to be altered to the following data.

Live storage	152.0 T.M.C.
Dead storage	247.5 T.M.C.
Carry-over	Nil
Annual reservoir losses	16.0 T.M.C.
Area submerged	70,400 acres
Full reservoir level	R.L. 590
Dead storage level	R.L. 530

5. **Description of the headworks**

Same as in Nagarjunasagar Project (**10.1-K.7-A.1**) except that the F.R.L. will be raised to R L. 590 by installing vertical gates 50 feet x 44 feet each.

6. **Description of the canals**

Nagarjunasagar Right Canal will be extended to mile 237 (new branches 144.3 miles) ; one seasonal ; lined ; capacity will be increased from **11,000 cusecs** to **21,000 cusecs**.

Nagarjunasagar Left Canal will be extended to mile 210 (new branches about 60 miles) ; two seasonal and in part perennial ; lined ; capacity will be increased from **11,000 cusecs** to **15,000 cusecs**.

7. (a) **Nature of investigations carried out up-to-date**

Project report was prepared in 1954 ; revised estimate under preparation.

(b) **Actual or probable date of beginning of construction**

IV Plan

8 Not available



## IRRIGATION ASPECTS

## 9. Gross commanded area, culturable commanded area and Ayacut, district-wise (additional)

Item	Nagarjunasagar Right Canal	Nagarjunasagar Left Canal			Grand Total
	Nellore	Krishna	West Godavari	Total	
	.....thousand acres.....				
G. C. A.	1,500.6	507.2	608.9	1,116.1	2,616.7
C. C. A.	1,297.2	306.0	365.4	671.4	1,968.6
Ayacut	888.0	228.0	210.0	438.0	1,326.0

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated		
	Nagarjunasagar Right Canal	Nagarjunasagar Left Canal	Krishna Delta
	.....thousand acres.....		
Perennial	—	40.0	25.0
Kharif	1,858.0	1,108.0	1,200.0
Rabi	—	290.0	150.0
<b>Total</b>	<b>1,858.0</b>	<b>1,438.0</b>	<b>1,375.0</b>
Deduct as under			
Nagarjunasagar Project and			
Srisaillam Project	970.0	1,000.0	1,475.0
Additional irrigation	888.0	438.0	minus 100.0

Continued below

Continued from above

	Intensity of irrigation on Ayacut		
	Nagarjunasagar Right Canal	Nagarjunasagar Left Canal	Krishna Delta
	.....percentage.....		
Perennial	—	3.0	2.0
Kharif	100.0	84.0	98.0
Rabi	—	22.0	12.0
<b>Total</b>	<b>100.0</b>	<b>109.0</b>	<b>112.0</b>

Additional irrigation on all three systems : 1,226,000 acres.

**11. Normal rainfall and river supply proposed to be diverted**

Nagarjunasagar Stage II integrated with Srisaillam

Month	River supply proposed to be diverted			Capacity factor	
	Nagarjunasagar		Krishna Delta	Nagarjunasagar	
	Right Canal	Left Canal		Right Canal	Left Canal
.....T.C.M. ....					
June	6.41	7.10	24.68	0.12	0.18
July	42.19	34.10	38.11	0.75	0.85
August	48.60	38.59	33.40	0.86	0.96
September	41.86	31.79	29.53	0.77	0.82
October	37.43	30.88	27.81	0.67	0.77
November	36.88	24.12	17.83	0.68	0.62
December	7.55	5.37	8.18	0.13	0.13
January	Nil	3.76	9.36	—	0.09
February	„	9.46	7.71	—	0.26
March	„	7.78	8.27	—	0.19
April	„	7.28	9.15	—	0.18
May	1.36	5.36	Nil	0.02	0.13
<b>Total</b>	<b>222.28</b>	<b>205.59</b>	<b>214.03</b>		
Deduct as under Nagarjuna-					
sagar Project and Srisaillam	<b>110.01</b>	<b>155.89</b>	<b>231.10</b>		
Additional diversion	<b>112.27</b>	<b>49.70</b>	minus <b>17.07</b>		
Total additional diversion by all three systems :			<b>144.90 T.M.C.</b>		

**12.** Not available**13. Characteristics of soils in the commanded area**

Red soil (sandy loams to loams) in Right Canal mile 57 to tail ; Black soils 85 percent and red soils 15 percent in Left Canal area.

**14. Existing pattern of cultivation in the area proposed to be irrigated**

Same as under Nagarjunasagar Project (1C.1-K.7-A.1)

## 15. (a) Proposed pattern of irrigated cultivation

	Perennial			Kharif			Continued below
	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
	Sugarcane	Others		Paddy	Groundnut		
Nagarjunasagar							
Right Canal	—	—	—	40.0	—	60.0	1,858.0
Nagarjunasagar							
Left Canal	1.0	1.8	40.0	42.7	4.5	22.9	1,108.0
Krishna Delta							
Canals	—	1.8	25.0	87.3	—	—	1,200.0
Continued from above	Rabi						Grand Total (T. acres)
	Percentage of principal crops			Total area (T. acres)			
	Paddy	Jowar	Cotton				
Nagarjunasagar							
Right Canal	—	—	—	—	—	—	1,858.0
Nagarjunasagar							
Left Canal	8.3	7.1	4.8	290.0	—	—	1,438.0
Krishna Delta							
Canals	10.9	—	—	150.0	—	—	1,375.0*

\*Same as under Krishna Delta System

(1 A-K.7-A.1)

(b) Are there any rules for regulating crop pattern?

Dry and wet areas will be localised

## 16. Duty and Delta at canal head (as anticipated)

197-198	Duty (acres per mean cusec)						Continued below
	Perennial	Kharif		Rabi			
		Paddy	Others	Paddy	Cotton	Jowar	
Nagarjunasagar Right Canal	—	83	166	—	—	—	
Nagarjunasagar Left Canal	50.5	70	146	57	167	182	
Continued from above	Delta (feet)						
	Perennial	Kharif		Rabi			Overall
		Paddy	Others	Paddy	Cotton	Jowar	
Nagarjunasagar Right Canal	—	3.9	2.0	—	—	—	2.9
Nagarjunasagar Left Canal	14.5	4.4	1.7	4.8	2.5	1.3	2.6

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom  
300 tanks, irrigating 77, 600 acres, excluded from the Ayacut

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom  
Area irrigated by wells is insignificant

18. Quantum of river supplies available in relation to withdrawals

River supply data not available. The adequacy or otherwise of river supplies for this project would also be governed by the requirements of an integrated basin-wide plan.

POWER ASPECTS

19. River supply proposed to be diverted and operation head

(a) at Srisaillam

Month and fortnight	Operation head (feet)	Supply passing through turbines	
		Cusecs	T.M.C.
June I	297.0	8,100	10.50
II	301.0	7,875	10.20
July I	315.5	36,610	47.50
II	328.5	32,500	45.00
Aug. I	339.5	34,020	44.00
II	342.0	34,200	47.25
Sep. I	342.5	34,250	44.40
II	342.5	34,250	44.40
Oct. I	321.5	35,920	46.50
II	307.5	16,454	22.75
Nov. I	318.0	8,100	10.50
II	329.0	8,100	10.50
Dec. I	334.0	8,100	10.50
II	333.0	7,600	10.50
Jan. I	330.0	8,100	10.50
II	326.5	7,600	10.50
Feb. I	323.5	8,100	10.50
II	320.5	9,350	10.50
March I	317.5	8,100	10.50
II	314.5	7,600	10.50
April I	311.5	8,100	10.50
II	308.0	8,100	10.50
May I	303.5	8,100	10.50
II	299.5	7,600	10.50
Total			509.50

## (b) at Nagarjunasagar Dam

Month	Range of operation head (feet)	Supply passing through turbines	
		Cusecs	T.M.C.
June	308	10,088	26.15
July	289	9,910	26.54
August	286	9,802	26.25
September	293	9,494	24.61
October	325	7,549	20.22
November	315	7,401	19.18
December	302	3,287	8.80
January	304	3,459	9.26
February	306	3,177	7.69
March	307	3,082	8.25
April	308	3,525	9.14
May	310	3,110	8.34
		<b>Total</b>	<b>194.43</b>

20. Proposed disposal of tail race waters Will be let into the river

21. Quantum of river supplies available in relation to withdrawals

See item 18 above, power generation at Nagarjunasagar Dam during February to May will be less than under **2C.2-K.7-A.2**

## GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

Nil

24. to 27. Not available

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture, generation of power

29. Special features of the scheme

About 50 percent of the area under the Left Canal and the entire area under the Right Canal lies outside the Krishna drainage basin

## PULICHINTALA PROJECT

50.3-K. 7-A. 5

1. **Name of State** Andhra Pradesh (formerly in Madras)
2. **Scope of the scheme or system**  
Multipurpose scheme; flow-cum-storage; irrigation, Ayacut 391,000 acres; power, firm 30,000 kW. installed and seasonal (150 days) 1,20,000 kW. installed.
3. **Source of supply**  
Krishna river at Pulichintala  
Considerable upstream use both existing and proposed
4. **Description of the reservoir or tank**

Live storage	116.60 T. M. C.
Dead storage	47.00 „
Carry-over	Nil
Annual reservoir losses	16.00 T. M. C.
Filling period	June to September
Depletion period	June to October
Catchment area	90,650 square miles
Area submerged	78,080 acres
Full reservoir level	R. L. 225
Minimum pond level	R. L. 175
5. **Description of the headworks**

Dam :	earthen, 11,376 feet long, 95 feet high and masonry 225.5 feet high
Spillway :	masonry, 1,740 feet long, gates 25 numbers, 60 feet x 28 feet each, total capacity 1,000,000 cusecs
Outlets :	river sluices 16 numbers, 10 feet x 20 feet each, total capacity 48,000 cusecs ; canal sluices 3 numbers, 10 feet x 20 feet each; total capacity 6,240 cusecs ; penstocks 5 numbers of 18.0 feet diameter each, total capacity 17,000 cusecs ;
6. **Description of the canals**  
Pulichintala Canal (contour); right bank; 100 miles long; one seasonal ; lined for 30 miles and then unlined; authorised capacity 6,150 cusecs

7. (a) Nature of investigations carried out up-to-date Project report ready  
 (b) Actual or probable date of beginning of construction IV Plan  
 8. Not available

### IRRIGATION ASPECTS

#### 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Guntur

G. C. A. 829,300\* acres

C. C. A. 781,000\* „

Ayacut 391,000 „

\*Includes the block of 200,000 acres commanded by the Nagarjunasagar Project Right Bank Canal and 150,000 acres by the New Krishna West Canal

#### 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	Intensity of irrigation on Ayacut
Abi	391,000 acres	100.0 percent

#### 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			...T. M. C....	
June	3.3	3.9	1.0	2.54	0.16
July	4.5	8.8	3.3	14.40	0.87
Aug.	4.7	7.6	2.1	16.76	1.02
Sep.	5.5	6.8	2.4	13.80	0.87
Oct.	6.1	9.5	2.6	13.20	0.80
Nov.	4.0	14.4	Nil	12.30	0.77
Dec.	0.5	4.1	„	Nil	—
Jan.	0.3	0.3	„	„	—
Feb.	0.4	0.4	„	„	—
Mar.	0.4	1.7	„	„	—
Apr.	0.7	1.4	„	„	—
May	1.4	5.3	0.9	„	—
<b>Total</b>	<b>31.8</b>			<b>73.00</b>	

12. Not available

#### 13. (a) Characteristics of soils in the commanded area

Black soil 77.75 percent, red soil 20.37 percent and araneceons 1.88 percent.

- (b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif					Rabi			Total cropped area (T. acres)
Percentage of principal crops				Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
Saja	Cholum	Ground- nut	Others		Jowar	Others		
11.5	45.7	17.1	5.7	224.0	15.0	5.0	56.0	280.0

111,000 acres uncultivated lands

15. (a) Proposed pattern of irrigated cultivation

<i>Abi</i>	
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>
<i>Paddy</i>	
100.0	391.0

- (b) Are there any rules for regulating crop pattern ? Not necessary

16. Duty and Delta at canal head (as anticipated)

<i>Duty (acres per mean cusec)</i>	<i>Delta (feet)</i>
<i>Abi</i>	<i>Abi</i>
85	4.3

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

251 tanks, irrigating 14,101 acres, excluded from the Ayacut

- (b) Not available

18. Quantum of river supplies available in relation to withdrawals

River supply data not available



## POWER ASPECTS

**19. River supply proposed to diverted and operation head**

<i>Month</i>	<i>Range of operation head (feet)</i>	<i>Supply passing through turbines (cusecs)</i>
June		9,345
July		10,990
August		10,775
September	38 feet	10,265
October		9,985
November	to	7,015
December		3,230
January	87 feet	3,468
February		3,190
March		3,085
April		3,530
May		3,073
<b>Total</b>		<b>205.85 T.M.C.</b>

**20. Proposed disposal of tail-race water**

The tail-race waters will be let into the river

**21. Quantum of river supplies available in relation to withdrawals**

See item 18 above

## GENERAL

**22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. Extent and type of area submerged by reservoir**

Submergence mostly covered with forests, within Andhra Pradesh

**24. Total cost of the scheme** Rs. 27,44 lakhs (1954)

**25. Financial return of the scheme** 3.48 percent

**26. Cost per acre irrigated** Rs. 365

**27. Cost per kW. installed** Rs. 448

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture, reclamation of uncultivated land, power generation

**29. Special features of the scheme**

About 44 percent of the area lies outside the Krishna drainage basin

**NAGARJUNASAGAR PROJECT-STAGE III****6C.3-K.7-A.6**

1. **Name of State** Andhra Pradesh (formerly in Hyderabad and Madras)

2. **Scope of the scheme or system**

Irrigation scheme ; flow-cum-storage; additional Ayacut 333,000 acres. The project also merges into it the Pulichintala Project (5C. 3-K. 7-A. 5) and all canals under Nagarjunasagar Project and Nagarjunasagar Project-Stage II.

3. **Source of supply**

Krishna river at Nagarjunasagar and Pulichintala

4. **Description of the reservoir or tank**

The following particulars of the dams and reservoirs at Srisaillam and Nagarjunasagar will be altered as shown;

		<i>Srisaillam</i>	<i>Nagarjunasagar</i>
Live storage	(T.M.C.)	210.0	243.0
Dead storage	(T.M.C.)	98.0	189.0
Additional area submerged (acres)		...	N.A.
Full reservoir level		885	600
Dead storage level		830	500

5. **Description of the headworks**

As under Srisaillam Project and Nagarjunasagar Project-Stage II

6. **Description of the canals**

Not available; but the Nagarjunasagar Right Canal hereunder includes the Pulichintala Canal and the New Krishna West Canal

7. (a) **Nature of investigations carried out up-to-date** No fresh investigations are necessary  
 (b) **Actual or probable date of beginning of construction** IV Plan  
 Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

Item	Names of districts									Grand Total
	Nagarjunasagar Right Canal				Nagarjunasagar Left Canal					
	Guntur	Kurnool	Nellore	Total	Nalga- nda	Kham- mam	Krishna	West Godavari	Total	
.....thousand acres.....										
G.C.A.	1,984.0	41.3	1,723.3	3,748.6	574.3	587.2	1,012.9	608.9	2,783.3	
C.C.A.	1,775.0	39.7	1,479.1	3,293.8	516.8	513.8	705.1	365.4	2,101.1	
Ayacut	1,392.0	20.0	988.0	2,400.0	400.0	370.0	560.0	320.0	1,650.0	4,050.0

Deduct Ayacut

provided under

Nagarjunasagar

Project, Nagar-

junasagar Project

Stage II and

Pulichintala

Project 1,391.0 20.0 988.0 2,399.0 380.0 210.0 518.0 210.0 1,318.0 3,717.0

Additional

Ayacut 1.0 — — 1.0 20.0 160.0 42.0 110.0 332.0 333.0

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated			Intensity of irrigation on Ayacut		
	Krishna Delta	Nagarjunasagar Right Canal	Nagarjunasagar Left Canal	Krishna Delta	Nagarjunasagar Right Canal	Nagarjunasagar Left Canal
.....thousand acres.....				.....percentage.....		
Perennial	25.0	300.0	200.0	2.0	12.5	12.1
Abi	1,200.0	2,100.0	1,450.0	98.0	87.5	87.9
Tabi	750.0	700.0	500.0	61.2	29.2	30.3
<b>Total</b>	<b>1,975.0</b>	<b>3,100.0</b>	<b>2,150.0</b>	<b>161.2</b>	<b>129.2</b>	<b>130.3</b>

Deduct area irrigated

as per Nagarjunasagar

Project, Nagarjunasagar

Project-Stage II and

Pulichintala Project

Additional irrigation 1,375.0 2,399.0 1,438.0

600.0 701.0 712.0

**Grand Total 2013.0**

**11. Normal rainfall and river supply proposed to be diverted**

Month	Rainfall			River supply proposed to be diverted in all canals at Nagarjunasagar, Pulichintala and Vijayawada including the New Krishna West Canal
	Normal	Maximum	Minimum	
	.....inches.....			.....T.M.C.....
June				45.0
July				163.0
August				182.0
September	Same as under Krishna Delta			150.0
October	Scheme, Nagarjunasagar project,			140.0
November	Nagarjunasagar project-Stage II			123.0
December	and Pulichintala project			20.0
January				41.0
February				130.0
March				126.0
April				131.0
May				81.0
<b>Total</b>				<b>1,332.0</b>
Deduct as per Nagarjunasagar Project-Stage II				641.90
Pulichintala Project				73.00
New Krishna West Canal				21.93
Additional diversion				736.83
				<b>595.17 T. M. C.</b>

**12. to 14.** Same as under Nagarjunasagar Project-Stage II**15. (a) Proposed pattern of irrigated cultivation**

Perennial			Abi		Tabi		Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)		
Sugarcane		Paddy		Paddy			
Right side							
canals	9.7	300.0	67.7	2,100.0	22.6	700.0	3,100.0
Left side							
canals	9.3	200.0	67.4	1,450.0	23.3	500.0	2,150.0
Krishna							
Delta	1.3	25.0	60.7	1,200.0	38.0	750.0	1,975.0

(b) Are there any rules for regulating crop pattern ?

Paddy and sugarcane areas will be localised

**16. Duty and Delta at canal head**

	Duty (acres per mean cusec)			Delta (feet)			
	Perennial	Abi	Tabi	Perennial	Abi	Tabi	Overall
Nagarjunasagar							
Right Canal	50.5	83	57	11.0	3.9	4.8	4.3
Nagarjunasagar							
Left Canal	50.5	70	57	11.0	4.3	4.8	4.6
Krishna Delta	75.0	100	50	7.3	3.6	4.8	3.9

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

As per Nagarjunasagar Project-Stage II

**(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

As per Nagarjunasagar Project-Stage II

**18. Quantum of river supplies available in relation to withdrawals**

Total storage available at Srisailem, Nagarjunasagar and Pulinchintala dams is 570 T. M. C. In addition stored water to the extent of 75 T. M. C. will be obtained from Somsila dam by making necessary modification in the dam. The adequacy or otherwise of river supplies for this project would be governed by the requirements of an integrated basin-wide plan.

**POWER ASPECTS**

**19. River supply proposed to be diverted and operation head**

The firm power at Srisailem and Nagarjunasagar will be reduced considerably; particulars not available

**20. Proposed disposal of tail-race waters** Tail-race waters will be used for irrigation

**21. Quantum of river supplies available in relation to withdrawals** Same as under 18 above

**GENERAL**

**22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. to 27.** Not available

**28. Main features and purpose of the scheme**

Conversion of dry crops to paddy and sugarcane and conversion of rain-fed cultivation to irrigated agriculture. Reduction in power generation.

**29. Special features of the scheme**

Above 65 percent of the area lies outside the Krishna drainage basin

## BHIMA PROJECT

7C.3-K.6-A.7

**1. Name of State** Andhra Pradesh (formerly in Hyderabad)

Andhra Pradesh desires that this project should be taken up jointly with Bhima Irrigation Scheme of Mysore 53C.3-K.6-My.10

**2. Scope of the scheme or system**

Irrigation scheme ; flow-cum-storage ; Ayacut 400,000 acres

**3. Source of supply**

Bhima at Thangadgi/Krishna ;

Considerable uses upstream

**4. Description of the reservoir or tank**

Live storage	24.62 T.M.C.
Dead storage	5.23 „
Carry-over	Nil
Annual reservoir losses	6.63 T.M.C.
Filling period	June to October
Depletion period	November to May
Catchment area	26,750 square miles
Area submerged	33,414 acres
Full reservoir level	R.L. 1,258
Minimum pond level	R.L. 1,230

**5. Description of the headworks**

Dam:	masonry, 3,680 feet long, 95 feet high, with flanking composite dam 11,165 feet long, maximum height 36 feet, and left end flanking earth dam 3,035 feet long, maximum height 14 feet
Spillway:	4,120 feet long, 59 gates, 60 feet x 40 feet each, total capacity 793,520 cusecs
Outlets :	20 river sluices, 6 feet x 10 feet each, total capacity 30,000 cusecs; head sluices- capacity 9,000 cusecs

**6. Description of the canal**

Left Bank Canal (contour) ; 50 miles long ; perennial ; unlined ; authorised capacity 7,500 cusecs

## 7. (a) Nature of investigations carried out up-to-date

A project report was prepared in 1932. Fresh field investigations will have to be undertaken.

## (b) Actual or probable date of beginning of construction

IV Plan

8. Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Mahbubnagar

G. C. A. 522,400 acres

C. C. A. 444,000 „

Ayacut 400,000 „

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	Intensity of irrigation on Ayacut
Perennial	20,000 acres	5.0 percent
Abi	380,000 „	95.0 „
<b>Total</b>	<b>400,000 „</b>	<b>100.0 „</b>

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
1	2	3	4	5	6
	.....inches.....			.....T. M. C.....	
June	3.9	8.9	Nil	1.80	0.09
July	5.5	14.7	0.1	5.20	0.26
August	4.2	18.1	0.3	22.10	1.10
September	6.1	16.2	0.6	20.30	1.04
October	2.7	10.7	0.1	17.30	0.86
November	1.2	2.5	Nil	15.20	0.78
December	0.2	1.6	„	14.60	0.73
January	0.2	3.3	0.1	1.20	0.06
February	0.4	4.5	0.1	1.20	0.07
March	0.4	2.0	0.1	0.90	0.05
April	1.0	3.9	Nil	0.90	0.05
May	0.9	5.3	0.1	Nil	—
<b>Total</b>	<b>26.7</b>			<b>100.70</b>	

12. Not available

13. (a) Characteristics of soils in the commanded area Sandy loam

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif					Total cropped area (T. acres)
Percentage of principal crops					
Jowar	Bajra	Groundnut	Caster	Others	
27.0	5.0	17.0	9.0	42.0	259.0
141,000 acres uncultivated land					

15. (a) Proposed pattern of irrigated cultivation

Perennial		Abi		Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
Sugarcane		Paddy		
5.0	20.0	95.0	380.0	400.0

(b) Are there any rules for regulating crop pattern? No

16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)		Delta (feet)		
Perennial	Abi	Perennial	Abi	Overall
51	73	13.1	5.0	5.8

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

221 tanks, irrigating 6,840 acres, not merged in the Ayacut

(b) Not available

18. Quantum of river supplies available in relation to withdrawals

River supply data not available



19. to 21. Not applicable

#### GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Nil

23. Extent and type of area submerged by reservoir

The dam is located in Mysore, hence the entire submergence of 33,414 acres will be in Mysore. The area consists mostly of dry lands and there are 24 villages in the area.

24. to 26. Not available

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture ; reclamation of uncultivated land.



## OKACHETTUVAGU PROJECT

8C.3-K.7-A.8

1. Name of State Andhra Pradesh (formerly in Hyderabad)

2. Scope of the scheme or system

Irrigation scheme ; flow-cum-storage ; Ayacut 5,500 acres

3. Source of supply

Okachettuvagu near Atmakur/Krishna

Utilisation upstream :

existing : number of tanks

proposed : nil

4. Description of the reservoir or tank

Live storage	0.98 T. M. C.
Dead storage	0.08 „
Carry-over	Nil
Annual reservoir losses	0.27 T. M. C.
Filling period	June to September
Depletion period	Oct. to May
Catchment area	1,582 square miles
Area submerged	950 acres
Full reservoir level	R. L. 1,034
Minimum pond level	R. L. 1,007

5. Description of the headworks

Dam :	earthen, 11,149 feet long, 57 feet high
Spillway :	ogee, 700 feet long, capacity 88,093 cusecs and free over-fall weir, 2,267 feet long, capacity 51,676 cusecs
Outlets :	two head sluices, one on each flank, left side 3 feet x 5 feet, right side 3 feet x 4 feet

6. Description of the canals

Left Bank Canal (contour) ; 10 miles long ; two seasonal ; unlined ; capacity 80 cusecs

Right Bank Canal (contour) ; 8 miles long ; two seasonal ; unlined ; capacity 67 cusecs

7. (a) Nature of investigations carried out up-to-date

Field investigations in progress

(b) Actual or probable date of beginning of construction

IV Plan

8. Not available

### IRRIGATION ASPECTS

#### 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Mahbubnagar

G.C.A.	25,600	acres
C.C.A.	15,400	,,
Ayacut	5,500	,,

#### 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	Intensity of irrigation on Ayacut
Abi	5,500 acres	100.0 percent
Tabi	1,200 ,,	21.8 ,,
Total	6,700 ,,	121.8 ,,

#### 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			.....T. M. C.....	
June	4.3	5.6	0.1	0.06	0.16
July	7.0	11.7	3.2	0.28	0.71
August	6.2	18.1	0.6	0.37	0.94
September	7.1	16.7	Nil	0.34	0.89
October	2.8	6.5	1.6	0.35	0.89
November	0.9	3.7	Nil	0.20	0.52
December	0.1	0.2	,,	0.02	0.05
January	0.2	0.2	,,	0.07	0.18
February	0.4	0.4	,,	0.07	0.20
March	0.2	0.3	,,	0.08	0.20
April	0.6	1.9	,,	0.05	0.13
May	1.1	9.6	,,	0.03	0.08
Total	30.9			1.92	

12. Not available

#### 13. (a) Characteristics of soils in the commanded area

red sandy loams ; light clay loam

- (b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

**14. Existing pattern of cultivation in the area proposed to be irrigated**

<i>Kharif</i>					<i>Total cropped area (T. acres)</i>
<i>Percentage of principal crops</i>					
<i>Jowar</i>	<i>Bajra</i>	<i>Groundnut</i>	<i>Castor</i>	<i>Others</i>	
27.0	5.0	17.0	9.0	42.0	3.9

**15. (a) Proposed pattern of irrigated cultivation**

<i>Abi</i>		<i>Tabi</i>		<i>Grand Total (T. acres)</i>
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	
<i>Paddy</i>		<i>Paddy</i>		
82.1	5.5	17.9	1.2	6.7

**16. Duty and Delta at canal head (as anticipated)**

<i>Duty (acres per mean cusec)</i>		<i>Delta (feet)</i>		
<i>Abi</i>	<i>Tabi</i>	<i>Abi</i>	<i>Tabi</i>	<i>Overall</i>
50	43	6.7	6.1	6.6

17. Not available

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

19. to 21. Not applicable

**GENERAL**

**22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. Extent and type of area submerged by reservoir**

950 acres dry land and 232 acres wet land

24. to 26. Not available

27. Not applicable

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

**TUNGABHADRA PROJECT, LEFT BANK LOW LEVEL CANAL**  
(Extension into Andhra Pradesh)

9.C.3-K.8-A.9

1. Name of State                      Andhra Pradesh (formerly in Hyderabad)

2. Scope of the scheme or system

Irrigation scheme ; flow-cum-storage, additional Ayacut in Andhra Pradesh 120,000 acres

3. to 5.                              Same as in 2B-K. 8-A. 2/My. 2

6. Description of the canals

Extension of Tungabhadra Left Bank Low Level Canal from mile 127 to mile 141 in Mysore territory and further to mile 160 in Andhra Pradesh with the necessary distribution system. The capacity of the canal below mile 14 will be increased suitably.

7. (a) Nature of investigations carried out-up-to-date

Detailed investigations have yet to be taken up

(b) Actual or Probable date of beginning of construction

IV Plan

8.                      Not available

**IRRIGATION ASPECTS**

9. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Mahbubnagar

G. C. A.                              217,000 acres

C. C. A.                              170,000 „

Ayacut                                120,000 „

10. Area proposed to be irrigated annually and intensity of irrigation

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
<i>Abi</i>	40,000 acres	33.3 percent
<i>Rabi</i>	80,000 „	66.7 „
<b>Total</b>	<b>120,000 „</b>	<b>100.0 „</b>

**11. Normal rainfall and river supply proposed to be diverted**

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
1	2	3	4	5	6
	<i>.....inches.....</i>			<i>.....T.M.C.....</i>	
June	3.0	4.4	1.8	2.07	1.00
July	4.0	12.6	1.8	2.14	1.00
Aug.	4.0	14.0	0.9	2.14	1.00
Sep.	5.0	10.9	1.3	2.07	1.00
Oct.	3.0	5.2	0.6	2.14	1.00
Nov.	Nil	Nil	Nil	2.07	1.00
Dec.	0.1	0.1	„	1.34	0.63
Jan.	Nil	Nil	„	1.34	0.63
Feb.	„	„	„	1.22	0.63
Mar.	0.3	2.1	„	1.34	0.63
Apr.	0.8	2.9	„	1.30	0.63
May	1.5	14.8	„	Nil	—
<b>Total</b>	<b>20.7</b>			<b>19.17</b>	

**12. Not available****13. (a) Characteristics of soils in the commanded area**

Clay loams and heavy clays

**(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?**

No

**14. Existing pattern of cultivation in the area proposed to be irrigated**

<i>Khariif</i>					<i>Total area (T. acres)</i>
<i>Percentage of principal crops</i>					
<i>Bajra</i>	<i>Jowar</i>	<i>Ground- nut</i>	<i>Cotton</i>	<i>Others</i>	
5.0	27.0	17.0	9.0	42.0	84.0

36,000 acres are barren lands

## 15. (a) Proposed pattern of irrigated cultivation

<i>Abi</i>		<i>Rabi</i>		<i>Grand Total (T. acres)</i>
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	
<i>Paddy</i>		<i>Others</i>		
33.3	40.0	66.7	80.0	120.0

(b) Are there any rules for regulating crop pattern ?

No

## 16. Duty and Delta at canal head (as anticipated)

<i>Duty (acres per mean cusec)</i>		<i>Delta (feet)</i>		
<i>Abi</i>	<i>Rabi</i>	<i>Abi</i>	<i>Rabi</i>	<i>Overall</i>
50	160	7.3	1.9	3.8

17. Not available

## 18. Quantum of river supplies available in relation to withdrawals

For river supply data please see 2B-K. 8-A. 2/My. 2

19. to 21. Not applicable

## GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

Nil

24. to 26. Not available

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture; reclamation of uncultivated lands

## **TUNGABHADRA PROJECT HIGH LEVEL CANAL**

### **STAGE II**

**10C.3-K.8-A.10/My.20**

- 1. Name of State**                      Andhra Pradesh and Mysore (formerly in Madras)
- 2. Scope of the scheme or system**  
Irrigation scheme; flow-cum-storage; additional Ayacut 132,400 acres in Andhra Pradesh and 66,200\* acres in Mysore.  
*\* According to Andhra Pradesh this figure should be 68,000 acres*
- 3.-4.**                      Same as under **2B.K.8-A. 2/My. 2**
- 5. Description of the headworks**  
Same as under **2B-K.8-A.2/My.2** with the addition of an anicut at Gandikota on the pennar, 1,600 feet long with earthen flanks, capacity 200,000 cusecs.  
under-sluices     : 30 vents, 10 feet x 8 feet each, total capacity 28,500 cusecs  
head-regulators   : 4 vents, 10 feet x 5 feet each and 4 vents 10 feet x 5 feet each.
- 6. Description of the canals**
  - (a) Lining of the Tungthadra Project High Level Canal from head to Mile 122 and change of authorised capacity to **4,000 cusecs** at head and **2,500 cusecs** at Mysore/ Andhra Pradesh border.
  - (b) Guntakal Branch (contour); 36 miles long; one seasonal; unlined; authorised capacity **627 cusecs** at head.
  - (c) Cuddapah North Canal (contour); 18.5 miles long; one seasonal; unlined; authorised capacity at head **483 cusecs**.
  - (d) Cuddapah South Canal (contour); 58.5 miles long; one seasonal; unlined; authorised capacity at head **202 cusecs**.
- 7. (a) Nature of investigations carried out up-to-date**                      Project report ready  
**(b) Actual or probable date of beginning of construction**                      IV Plan
- 8.**                      Not available



## IRRIGATION ASPECTS

## 9. Gross commanded area, culturable commanded area and Ayacut, district-wise (additional over Stage I)

Item	Main Canal	Guntakal Branch			Gandikota North Canal	Gandikota South Canal	Grand Total (Andhra Pradesh)
	Bellary(Mysore)	Anantapur	Kurnool	Total	Cuddapah	Cuddapah	
.....thousand acres.....							
G.C.A.	118.6	120.0	73.9	193.9	161.7	92.6	448.2
C.C.A.	98.7	89.1	69.9	159.0	106.9	40.2	306.1
Ayacut	66.2	33.9	28.5	62.4	50.0	20.0	132.4

## 10. Area proposed to be irrigated annually and intensity of irrigation (additional over Stage-I)

	Area proposed to be irrigated	Intensity of irrigation on Ayacut
Andhra Pradesh	132,400 acres	100.0 percent
Mysore	66,200 „	100.0 „
<b>Total (all Kharif)</b>	<b>198,600 „</b>	<b>100.0 „</b>

## 11. Normal rainfall and river supply proposed to be diverted

## (i) Main Canal

Month	River supply proposed to be diverted			Capacity factor
	Mysore	Andhra Pradesh	Total	
.....T.M.C.....				
June	3.12	3.93	7.05	0.68
July	3.70	7.27	10.97	1.02
August	3.70	5.87	9.57	0.89
September	3.59	5.59	9.18	0.89
October	2.86	5.91	8.77	0.82
November	0.53	3.93	4.46	0.43
December	Nil	Nil	Nil	—
January	„	„	„	—
February	„	„	„	—
March	„	„	„	—
April	„	„	„	—
May	„	„	„	—
Total	17.50*	32.50*	50.00*	
Deduct diversion proposed under K.8-A.2/My.3			28.78	
Additional diversion			21.22	

\* As at head of canal

## (ii) Guntakal Branch (Andhra Pradesh)

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			.....T. M. C.....	
June	2.5	4.1	0.3	0.50	0.31
July	3.0	7.3	1.0	1.39	0.83
August	4.0	7.7	0.5	1.57	0.93
September	5.5	8.8	1.9	1.46	0.90
October	4.0	9.6	0.9	1.52	0.90
November	1.5	4.1	0.2	0.87	0.53
December	0.2	1.4	Nil	Nil	—
January	0.1	Nil	„	„	—
February	0.3	0.6	„	„	—
March	0.3	0.8	„	„	—
April	0.8	1.1	„	„	—
May	1.8	8.1	0.5	„	—
<b>Total</b>	<b>24.0</b>			<b>7.31*</b>	

## (iii) Gandikota North Canal (Andhra Pradesh)

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			.....T. M. C.....	
June	2.5	6.6	0.3	0.40	0.32
July	3.0	7.8	1.4	1.11	0.86
August	4.0	4.8	1.3	1.26	0.98
September	5.0	11.3	1.0	1.17	0.94
October	4.0	10.6	1.7	1.22	0.95
November	2.5	7.2	Nil	0.70	0.56
December	0.3	2.1	„	Nil	—
January	0.2	Nil	„	„	—
February	0.3	0.1	„	„	—
March	0.3	0.5	„	„	—
April	0.8	2.3	„	„	—
May	1.5	5.8	„	„	—
<b>Total</b>	<b>24.4</b>			<b>5.86*</b>	

\* included in the withdrawals shown for the Main Canal

## (iv) Gandikota South Canal (Andhra Pradesh)

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	..... inches .....			..... T. M. C. ....	
June	2.5	5.5	0.4	0.16	0.31
July	3.0	9.4	1.5	0.45	0.83
August	4.0	5.7	1.1	0.50	0.93
September	5.0	8.6	1.0	0.47	0.90
October	4.0	9.3	2.0	0.49	0.91
November	2.5	8.5	Nil	0.28	0.54
December	0.3	2.4	,,	Nil	—
January	0.2	0.7	,,	,,	—
February	0.3	0.4	,,	,,	—
March	0.3	0.3	,,	,,	—
April	0.8	1.4	,,	,,	—
May	1.5	7.0	0.5	,,	—
<b>Total</b>	<b>24.4</b>			<b>2.35*</b>	

\* included in the withdrawals shown for the Main Canal

12. Not available

13. (a) Characteristics of soils in the commanded area

Andhra Pradesh — Varying from light sandy to deep black with red soils of gravelly nature here and there

Mysore — Same as under 2C.1-K.8-A.2/My. 3

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

(a) Additional areas in Stage II in Andhra Pradesh

Kharif							Total cropped area (T. acres)
Percentage of principal crops							
Jowar	Bajra	Pulses	Groundnut	Other cereals	Cotton	Others	
23.1	7.5	7.9	25.5	21.7	9.4	4.9	65.0
67,200 acres barren land							

67,200 acres barren land

## (b) Additional areas in Stage II in Mysore

<i>Kharif</i>					<i>Rabi</i>			<i>Total area (T. acres)</i>	<i>Total cropped area (T. acres)</i>
<i>Percentage of principal crops</i>				<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>				
<i>Paddy</i>	<i>Jowar</i>	<i>Millets</i>	<i>Groundnut</i>			<i>Jowar</i>	<i>Cotton</i>	<i>Others</i>	
0.4	8.0	26.0	10.0	29.4	22.0	33.0	0.6	36.8	66.2

## 15. (a) Proposed pattern of irrigated cultivation

<i>Kharif</i>		<i>Total area (T. acres)</i>
<i>Percentage of principal crops</i>		
<i>Paddy</i>	<i>Others</i>	
33.3	66.7	198.6

## (b) Are there any rules for regulating crop pattern ?

Wet areas will be localised

## 16. Duty and Delta at canal head (as anticipated)

	<i>Duty (acres per mean cusec)</i>		<i>Delta (feet)</i>	
	<i>Kharif</i>		<i>Kharif</i>	
	<i>Wet</i>	<i>Dry</i>	<i>Wet</i>	<i>Dry</i>
Andhra Pradesh	55	150	5.6	1.7
Mysore	50	160	6.0	1.7
Overall Delta 3.0 feet				

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Ayacut under tanks is not merged in the Ayacut of the project

## (b) Not available

## 18. Quantum of river supplies available in relation to withdrawals

River supplies are available to meet project requirements, but their adequacy or otherwise would also be governed by the requirements of an integrated basin-wide plan.

## 19. to 21. Not applicable

## GENERAL

## 22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Creates a power potential of 50,000 kW. (Tungabhadra High Level Canal Power Scheme)

## 23. Not applicable

- 24. Total cost of the scheme**  
8,90 lakhs (1957) (for both Mysore and Andhra Pradesh)
- 25. Financial return of the scheme** 1.78 percent
- 26. Cost per acre irrigated** Rs. 876 (for Andhra Pradesh)
- 27.** Not applicable
- 28. Main features and purpose of the scheme**  
Conversion of rain-fed cultivation to irrigated agriculture
- 29. Special features of the scheme**  
About 60 percent of the area lies outside the Krishna drainage basin



**TUNGABHADRA HIGH LEVEL CANAL POWER SCHEME****11C.3-K.8-A.11**

1. **Name of State** Andhra Pradesh (formerly in Madras)
2. **Scope of the scheme or system**  
Hydro-electric scheme, 50,000 kW. installed; seasonal for 150 days. Power house will be at mile 122 of Tungabhadra Project High Level Canal (Stage II).
3. to 6. Same as under Tungabhadra Project High Level Canal-Stage II
7. (a) **Nature of investigations carried out up-to-date**  
Field investigations in progress
- (b) **Actual or probable date of beginning of construction** IV Plan
8. Not available
9. to 18. Not applicable

**POWER ASPECTS****19. River supply proposed to be diverted and operation head**

Monthly releases at Urvakonda for Power development - operation head 250 feet

<i>Month</i>	<i>Monthly releases for power at Urvakonda</i>	
	<i>(cusecs)</i>	<i>(T.M.C.)</i>
June II Fortnight	1584	2.05
July	1584	4.24
August	1584	4.24
September	1584	4.10
October	1584	4.24
November I Fortnight	1584	2.05
<b>Total</b>		<b>20.92</b>

**20. Proposed disposal of tail-race waters**

Power house is in the canal and tail-race water will be diverted for irrigation.

**21. Quantum of river supplies available in relation to withdrawals** Canal power house

## GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Nil

23. Not applicable

24.—25. Not available

26. Not applicable

27. Not available

28. Main features and purpose of the scheme

Power generation for about 150 days in the year



# **RAJOLIBANDA RIGHT CANAL SCHEME**

**12C.3-K.8-A.12**

1. **Name of State** Andhra Pradesh (formerly in Hyderabad)
2. **Scope of the scheme or system**  
Irrigation scheme ; based on flow ; Ayacut 40,000 acres
3. **Source of supply**  
Tungabhadra at Rajolibanda/Krishna  
Considerable utilisation upstream
4. Not applicable
5. **Description of the headworks**  
Same as under 3B-K.8-A.3/My.3 with the addition of a head regulator in the right flank, 5 vents, 6 feet x 7 feet each, total capacity 1,000 cusecs.
6. **Description of the canal**  
Rajolibanda Right Canal (contour) ; 63.9 miles long ; partly perennial ; unlined ; capacity 1,000 cusecs
7. (a) **Nature of investigations carried out up-to-date** Project report ready  
(b) **Actual or probable date of beginning of construction** IV plan
8. Not available

## **IRRIGATION ASPECTS**

### **9. Gross commanded area, culturable commanded area and Ayacut, district-wise**

District Kurnool	
G. C. A.	77,200 acres
C. C. A.	46,100 „
Ayacut	40,000 „

### **10. Area proposed to be irrigated annually and intensity of irrigation**

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
Perennial	10,000 acres	25.0 percent
Abi	30,000 „	75.0 „
<b>Total</b>	<b>40,000 „</b>	<b>100.0 „</b>



**11. Normal rainfall and river supply proposed to be diverted**

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
<i>I</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
	.....inches.....			.....T.M.C.....	
June	3.0	4.9	0.1	1.04	0.40
July	4.0	13.7	2.1	2.30	0.86
August	4.0	16.3	0.2	2.30	0.86
September	5.0	20.6	2.0	2.23	0.86
October	3.0	8.7	0.1	1.61	0.60
November	1.2	5.0	Nil	0.78	0.30
December	0.1	0.2	"	0.54	0.20
January	Nil	Nil	"	0.54	0.20
February	0.3	1.2	"	0.48	0.20
March	0.3	1.0	"	0.54	0.20
April	0.7	1.3	"	0.52	0.20
May	1.5	9.1	"	Nil	—
<b>Total</b>	<b>23.1</b>			<b>12.83</b>	

**12.** Not available**13. (a) Characteristics of soils in the commanded area**

Light to heavy black cotton soil, predominantly light ; red soil in some places

**(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?**

No

**14. Existing pattern of cultivation in the area, proposed to be irrigated**

<i>Kharif</i>				<i>Total cropped area (T. acres)</i>
<i>Percentage of principal crops</i>				
<i>Jowar</i>	<i>Groundnut</i>	<i>Cotton</i>	<i>Others</i>	
28.0	18.0	16.0	38.0	28.0

12,000 acres of uncultivated land

**15. (a) Proposed pattern of irrigated cultivation**

<i>Perennial</i>		<i>Abi</i>		<i>Grand Total (T. acres)</i>
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	
<i>Sugarcane</i>		<i>Paddy</i>		
25.0	10.0	75.0	30.0	40.0

**(b) Are there any rules for regulating crop pattern ?**

Sugarcane and paddy areas will be localised

**16. Duty and Delta at canal head (as anticipated)**

<i>Duty (acres per mean cusec)</i>		<i>Delta (feet)</i>		<i>Overall</i>
<i>Perennial</i>	<i>Abi</i>	<i>Perennial</i>	<i>Abi</i>	
90	60	7.3	6.0	7.4

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

6 tanks, Ayacut 509 acres, not merged with the Ayacut

**(b) Not available****18. Quantum of river supplies available in relation to withdrawals**

River supply data not available. The adequacy or otherwise of river supplies for the project would also be governed by an integrated basin-wide plan.

**19. to 21. Not applicable****GENERAL****22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. Not applicable****24. Total cost of the scheme**

Rs. 2,42 lakhs (1957) including part cost of Rajolibanda anicut

**25. Financial return of the scheme 4.04 percent****26. Cost per acre irrigated Rs. 606****27. Not applicable****28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture, reclamation of uncultivated lands.

**MUNERU PROJECT****130.3-K.12-A.13**

1. **Name of State** Andhra Pradesh (formerly in Hyderabad)
2. **Scope of the scheme or system**  
Irrigation scheme ; flow-cum-storage ; Ayacut 7,500 acres
3. **Source of supply**  
Muneru at a site not yet determined/Krishna  
Utilisation upstream :  
existing : Pakhal lake and river works  
proposed : nil
4. to 6. Not available
7. (a) **Nature of investigations carried out up-to-date**  
Field investigations yet to be undertaken, present proposals based on topo-sheet studies  
(b) **Actual or probable date of beginning of construction** IV Plan
8. Not available

**IRRIGATION ASPECTS**

9. **Gross commanded area, culturable commanded area and Ayacut, district-wise**

District Khammam

G. C. A. 14,000 acres

C. C. A. 10,000 „

Ayacut 7,500 „

10. **Area proposed to be irrigated annually and intensity of irrigation**

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
<i>Abi</i>	7,500 acres	100.0 percent

11. **Normal rainfall and river supply proposed to be diverted**

Not available. Proposed diversion 1.5 T.M.C.

12. to 14. Not available

## 15. (a) Proposed pattern of irrigated cultivation

<i>Abi</i>	
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>
<i>Paddy</i>	
100.0	7.5

(b) Are there any rules for regulating crop pattern?

No

## 16. Duty and Delta at canal head (as anticipated)

<i>Duty (acres per mean cusec)</i>	<i>Delta (feet)</i>
<i>Abi</i>	<i>Abi</i>
70	4.6

17. Not available

## 18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

## GENERAL

## 22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Nil

23. to 26. Not available

27. Not applicable

## 28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture



## KALIKOTA PROJECT

1463-K.12-A.14

1. Name of State                      Andhra Pradesh (formerly in Hyderabad)

2. Scope of the scheme or system

Irrigation scheme; flow-cum-storage; Ayacut 13,000 acres

3. Source of supply

Wyra River at Kalikota/Munneru/Krishna

Utilisation upstream :

existing : minor tanks and Wyra Lake

proposed : nil

4. Description of the reservoir or tank

Live storage	1.44 T.M.C.
Dead storage	0.16   ,,
Carry-over	Nil
Annual reservoir losses	0.36 T.M.C.
Filling period	July to September
Depletion period	Oct. to April
Catchment area	674 square miles
Area submerged	2,200 acres
Full reservoir level	R.L. 294
Minimum pond level	R.L. 265

5. Description of the headworks

Dam :	earthen, with spillway weir, 9,000 feet long, 50 feet high
Spillway :	2,500 feet long with 6 feet high automatic falling shutters, capacity 120,000 cusecs
Outlets :	two head sluices, left side, 5 feet x 3.5 feet. right side, 2 vents, each 4 feet x 3 feet

6. Description of the canals

Right Bank Canal (contour) ; 14½ miles long ; two seasonal ; unlined ; authorised capacity 140 cusecs

Left Bank Canal (contour) ; 10 miles long ; two seasonal ; unlined ; authorised capacity 100 cusecs

7. (a) Nature of investigations carried out up-to-date

Detailed surveys have not been done

(b) Actual or probable date of beginning of construction

IV Plan

8. Not available

## IRRIGATION ASPECTS

9. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Khammam

	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>	<i>Total</i>
	.....thousand acres.....		
G.C.A.	9.3	15.2	24.5
C.C.A.	7.5	12.0	19.5
Ayacut	5.0	8.0	13.0

10. Area proposed to be irrigated annually and intensity of irrigation

	<i>Area proposed to be irrigated</i>		<i>Intensity of irrigation on Ayacut</i>	
	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>
	.....thousand acres.....		.....percentage.....	
<i>Abi</i>	5.0	8.0	100.0	100.0
<i>Tabi</i>	1.0	3.0	20.0	37.5
<b>Total</b>	<b>6.0</b>	<b>11.0</b>	<b>120.0</b>	<b>137.5</b>

11. Normal rainfall and river supply proposed to be diverted

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>		<i>Capacity factor</i>	
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Left Canal</i>	<i>Right Canal</i>	<i>Left Canal</i>	<i>Right Canal</i>
	.....inches.....			.....T.M.C.....			
June	5.1	6.1	2.5	0.03	0.05	0.12	0.14
July	9.4	17.3	4.5	0.17	0.25	0.63	0.67
Aug.	7.8	17.0	4.3	0.24	0.35	0.90	0.93
Sep.	6.3	12.9	4.5	0.25	0.37	0.97	1.02
Oct.	4.2	8.7	0.7	0.26	0.37	0.97	0.99
Nov.	1.5	5.5	Nil	0.14	0.20	0.54	0.55
Dec.	0.2	1.3	"	0.02	0.05	0.07	0.13
Jan.	0.2	0.9	"	0.05	0.15	0.19	0.40
Feb.	0.4	1.3	"	0.05	0.14	0.21	0.41
Mar.	0.5	3.6	"	0.05	0.16	0.19	0.43
Apr.	0.9	3.0	"	0.03	0.10	0.12	0.28
May	1.5	3.8	0.2	Nil	Nil	—	—
<b>Total</b>	<b>38.0</b>			<b>1.29</b>	<b>2.19</b>		
<b>Total for both canals</b>				<b>3.48 T.M.C.</b>			

12. Not available

13. (a) Characteristics of soils in the commanded area

Light clay loam

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif			Rabi			Total cropped area (T. acres)
Percentage of principal crops		Total area (T.acres)	Percentage of principal crops		Total area (T. acres)	
Jowar	Others		Pulses	Oil seeds		
32.0	41.3		6.6	14.5		

15. (a) Proposed pattern of irrigated cultivation

Abi		Tabi		Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
Paddy		Paddy		
76.5	13.0	23.5	4.0	17.0

(b) Are there any rules for regulating crop pattern ?

No

16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)		Delta (feet)		
Kharif	Rabi	Kharif	Rabi	Overall
73	65	4.8	4.4	4.7

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Not available

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

to 21. Not applicable

## GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Nil

23. Extent and type of area submerged by reservoir

Dry lands to the extent of about 2,200 acres and one village (Rayanapeta) will be submerged

24. to 26. Not available

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture





# MADRAS CANAL PROJECT

15C.3-K.7-Md.1

1. **Name of State** Madras
2. **Scope of the scheme or system**  
Irrigation scheme; flow-cum-storage; new Ayacut 757,000 acres, stabilisation in existing Ayacut on tanks 426,000 acres ; also supplements Madras city water supply
3. **Source of supply**  
Krishna at Srisaillam (or Nagarjunasagar) or from the Godavari
4. **Description of the reservoir or tank**  
Alternative I Same as in Srisaillam Hydro-electric Project (1C.2-K.7-A.1)  
Alternative II Nagarjunasagar (1C.1-K.7-A.1)
5. **Description of the headworks**  
Same as in Sangameshwaram Canal Scheme-Stage II (3C.3-K.7-A.3) except for modifications to draw-off the requirements of Madras Canal also.
6. **Description of the canals**  
Alternative I  
(i) Sangameshwaram Main Canal (Sec 3C.3-K.7-A.3)  
(ii) Madras Canal ex-Pennar Barrage (contour); right bank ; 438 miles long ; two seasonal ; lined ; authorised capacity 16,000 cusecs  
Alternative II  
Madras Canal ex-Nagarjunasagar (contour); right bank ; 557 miles long; lined; authorised capacity 16,000 cusecs
7. (a) **Nature of investigations carried out up-to-date**  
Alignment of the canal was investigated earlier. A fresh project report will be prepared when the source of supply has been determined.  
(b) Not available
8. Not available

## IRRIGATION ASPECTS

### 9. Gross commanded area, culturable commanded area and Ayacut, district-wise

Item	Names of districts			Total
	Chingleput	South Arcot	Pondicherry	
	.....thousand acres.....			
G. C. A.	1,028.0	443.0	38.0	1,509.0
C. C. A.	806.0	351.0	26.0	1,183.0
New Ayacut	464.0	279.0	14.0	757.0
Stabilisation of existing Ayacut on tanks etc.	342.0	72.0	12.0	426.0

## 10. (a) New area proposed to be irrigated annually and intensity of irrigation

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
(i) New area Paddy	757,000 acres	100.0 percent
(ii) Dry crops and green manure etc.	600,000 „	79.3 „
<b>Total</b>	<b>1,357,000 „</b>	<b>179.3 „</b>
(b) Stabilisation in existing Ayacut on tanks	426.0 „	100.0 „

## 11. Normal rainfall and river supply proposed to be diverted (See Annexure A)

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
	<i>.....inches.....</i>			<i>.....T. M. C.....</i>	
June	1.9	5.9	0.2	4.60	0.11
July	3.2	10.6	0.4	35.10	0.82
August	5.2	9.2	2.2	37.20	0.87
September	5.4	10.6	0.4	31.30	0.75
October	9.5	16.8	1.7	22.70	0.53
November	11.5	20.2	0.3	16.60	0.40
December	5.0	30.2	Nil	16.00	0.37
January	1.5	5.2	„	15.60	0.36
February	0.5	1.8	„	16.70	0.48
March	0.4	4.0	„	10.50	0.25
April	0.9	4.2	„	Nil	—
May	1.6	11.0	0.1	„	—
<b>Total</b>	<b>46.6</b>			<b>206.30*</b>	

\*includes 15.50 T. M. C. for Madras City water supply

## 12. Not available

## 13. (a) Characteristics of soils in the commanded area

Clay, loam and sand

## (b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

**14. Existing pattern of cultivation in the area proposed to be irrigated**

I Crop					II Crop		Total cropped area (T. acres)
Percentage of principal crops				Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
Paddy	Ragi	Groundnut	Others		Paddy		
54	6	9	16	741	15	132	873

The rest of the Ayacut is at present fallow land or under other uses

**15 (a) Proposed pattern of irrigated cultivation**

	<i>I Crop</i>		<i>II Crop</i>		<i>Grand Total (T. acres)</i>
	<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	
	<i>Wet crop Paddy</i>		<i>Dry crops and Green manure crops</i>		
(i) new areas	55.8	757.0	44.2	600.0	1,357.0
(ii) stabilisation in existing areas under tanks etc.	100.0	426.0			426.0

(b) Are there any rules for regulating crop pattern ? No

**16. Duty and Delta at canal head (as anticipated)**

<i>Duty (acres per mean cusec)</i>			<i>Delta (feet)</i>			<i>Overall</i>
<i>Wet crop</i>	<i>Dry and Manure crops</i>	<i>Stabilisation</i>	<i>Wet crop</i>	<i>Dry and Manure crops</i>	<i>Stabilisation</i>	
94	200	200	3.5	1.0/1.4	1.6	3.5

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

1,800 tanks, irrigating 240,000 acres, included in the Ayacut

**(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

32,000 wells, irrigating 45,000 acres, included in the Ayacut

18. Not available

19. to 21. Not applicable

सत्यमेव जयते

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns  
Water supply for Madras City - 15.5 T.M.C. (*See Annexure B*)
23. Not available
24. Total cost of the scheme  
Alternative I Rs. 82,50 lakhs  
Alternative II Rs. 1,22,50 lakhs } excluding cost of dams  
based on rough preliminary estimates
- 25.-26. Not available
27. Not applicable
28. Main features and purpose of the scheme  
Stabilisation of existing irrigation ; conversion of rain-fed agriculture to irrigated crops and water supply to Madras City.
29. Special features of the scheme  
The entire irrigation lies outside the Krishna drainage basin

## MADRAS CANAL

## STATEMENT OF

Month	Normal rainfall in irrigated area (Average for Chingleput and South Arcot Districts)	Useful rainfall (about half of normal rainfall)	Over the existing irrigated area of about 426,000 acres.					
			Green manure and other dry crops on 200,000 acres (NEW)			Stabilisation for wet irrigation on 426,000 acres		
			Total supply required	Net supply after allowing for useful rainfall	Net requirements through canal	Net total supply required after allowing for rainfall	Stabilisation (40% of col. 7)	Net requirements through canal
	inches	inches	inches	inches	T.M.C.	inches	inches	T.M.C.
1	2	3	4	5	6	7	8	9
June	1.9	1.0	5.0	4.0	2.90			
July	3.2	1.5	5.0	3.5	2.55			
August	5.2	2.5	5.0	2.5	1.80			
September	5.4	2.5	5.0	2.5	1.80			
October	9.5	4.5				7.5	3.0	4.65
November	11.5	5.5				8.5	3.4	5.25
December	5.0	2.5				9.5	3.8	5.85
January	1.5	0.8				11.2	4.5	6.95
February	0.5	0.2				9.8	3.9	6.00
March	0.4	0.2						
<b>Total</b>	<b>44.1</b>	<b>21.2</b>	<b>20.0</b>	<b>12.5</b>	<b>9.05</b>	<b>46.5</b>	<b>18.6</b>	<b>28.70</b>

Maximum demand in August 37.23 T. M. C.

equivalent to..... 13,900 cusecs

add Transmission losses 7 percent 1,000 cusecs

add for meeting heavy demand

during transplantation period..... 1,000 cusecs

**Total**

**16,000 cusecs**

## PROJECT

## Annexure A

## MONTHLY DEMAND

Over a new area of 757,000 acres						Madras city water supply	Total of all require- ments	Trans- mission loss 7% of col. 17.	Total require- ments
New wet crop on 757,000 acres			Dry crops on 400,000 acres (NEW)						
Total supply required	Net supply after allow- ing for useful rainfall	Net require- ments through canal	Total supply required	Net supply after allow- ing for useful rainfall	Net require- ments through canal				
inches	inches	T.M.C.	inches	inches	T.M.C.	T.M.C.	T.M.C.	T.M.C.	T.M.C.
10	11	12	13	14	15	16	17	18	19
						1.40	4.30	0.30	4.60
12.0	10.5	28.80				1.44	32.79	2.30	35.09
14.0	11.5	31.55				1.44	34.79	2.44	37.23
12.0	9.5	26.05				1.40	29.25	2.05	31.30
10.0	5.5	15.10				1.44	21.19	1.48	22.67
9.0	3.5	9.60				70	15.55	1.09	16.64
3.0	1.8	4.80	5.0	2.5	3.60	70	14.95	1.05	16.00
			5.0	4.2	6.15	1.44	14.54	1.02	15.56
			5.0	4.8	6.90	2.72	15.62	1.09	16.71
			5.0	4.8	6.95	2.86	9.81	0.69	10.50
60.0	42.3	115.90	20.0	16.3	23.60	15.54	192.79	13.51	206.30

**MADRAS CITY WATER SUPPLY****Annexure B**

The present supply to the city of Madras is from three small storage reservoirs, viz., Red Hills, Cholavaram and Poondi, which depend on the north-east monsoon. The live storage of each of these reservoirs is:

	Live storage T.M.C.
Red Hills Lake	1.98
Cholavaram Lake	0.53
Poondi Reservoir	2.75
<b>Total</b>	<b>5.26</b>

The aggregate storage capacity of the reservoirs, put together, can be taken as 5.0 T.M.C. Out of this, about 40 percent is lost by way of evaporation, transmission and seepage in the system and a quantity of 0.55 T.M.C. is reserved for existing irrigation under the Cholavaram and Red Hills Lakes. Thus the net storage capacity available, at present, for the requirements of the city water supply is of the order of 2.5 T.M.C. only. Even this storage is assured only during years of favourable rainfall.

**2. POPULATION**

The population figures of the city of Madras for the past six decades were as follows :

<i>Year</i>	<i>Area</i>	<i>Population</i>
1901	29.81 square miles	509,000
1911	"	517,000
1921	"	537,000
1931	" सत्यमेव जयते	647,000
1941	"	777,000
1951	50 "	1,429,374
1961	"	1,725,430

The large increase in population from 1951 is due partly to the extensions of the boundaries of the city since 1946. The population anticipated in the years 1976, 1991 and 2011 in the present city limits have been worked out by the semi-log method as 2.4 million, 3.2 million and 5.0 million respectively.

The population of the city, as per 1961 census, is 1.725 million and the present water supply is about 30 to 32 million gallons a day in a favourable rainfall year. This works out to a

per capita daily supply of about 18 gallons, which for a city like Madras cannot be considered at all satisfactory. The position is particularly bad in the newly included areas of the city and also in the newly developed suburbs. The existing industries within the city are also suffering on account of the limited water supply. Their present requirements are not being met satisfactorily. The expansion of existing industrial concerns and the growth of new industries in and around the city are hampered on account of the unsatisfactory position of water supply.

### 3. REQUIREMENTS

An expanding city like Madras, should have a minimum daily supply of 50 gallons of water per capita, as recommended by the Environmental Hygienic Committee constituted by the Government of India in 1948. Rates of 90 to 130 gallons per capita per day are common in America. Assuming a supply of 50 gallons per capita per day, the total requirements of the anticipated population, by the year 2011, will work out to 250 million gallons per day; 30 million gallons per day has to be provided for the needs of industries in this area and another 10 million gallons per day should be provided to supply the needs of the way-side village and new industries that may spring up in the area that will be traversed by the supply channel to the City. Thus, the total anticipated requirements of the city in the year 2011 will be of the order of 290 million gallons per day. The assured supply from existing sources, during years of unfavourable monsoon, may be of the order of 20 million gallons per day. Thus the supply to be drawn from other sources will be 270 million gallons per day or 15.44 say 15.5 T.M.C. per year.





**DHOM PROJECT****16C.3-K.1-M.1**

1. **Name of State** Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**  
Multipurpose scheme ; flow-cum-storage ; irrigation, C.C.A. 87,700 acres (two alternative crop patterns) ; power, installed capacity not available
3. **Source of supply**  
Krishna at Dhom  
Utilisation upstream : nil
4. **Description of the reservoir or tank**

Live storage	11.0 T.M.C.
Dead storage	1.3 „
Carry-over	1.2 „
Annual reservoir losses	1.0 „
Filling period	15th June to 30th September
Depletion period	15th June to 14th June
Catchment area	84 square miles
Area submerged	5,000 acres
Full reservoir level	R.L. 2,448
Minimum pond level	R.L. 2,368
5. **Description of the headworks**

Dam	:	earthen, 6,800 feet long, 143 feet high
Spillway	:	masonry, capacity 63,500 cusecs
Outlets	:	one outlet in left flank, capacity 690 cusecs and one power outlet in dam, capacity 200 cusecs
6. **Description of the canal**  
Dhom Canal (contour) ; left bank ; 69 miles long ; perennial ; unlined ; **authorised**  
capacity Alternative I **530 cusecs**  
Alternative II **690 cusecs**
7. (a) **Nature of investigations carried out up-to-date**  
Preliminary investigations carried out; project report not yet ready  
(b) **Actual or probable date of beginning of construction** IV Plan
8. Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

District	Satara	
G. C. A.		101,000 acres
C. C. A.		91,000 „
Deduct area under well irrigation		3,300 „
Net C. C. A.		87,700 „

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Alternative I		Alternative II	
	Area proposed to be irrigated	Intensity of irrigation	Area proposed to be irrigated	Intensity of irrigation
	thousand acres	percentage	thousand acres	percentage
Perennial	10.7	12.2	3.5	4.0
Two seasonal	9.5	10.8	—	—
Long staple cotton	—	—	20.8	23.7
Khari*	9.5	10.8	22.2	25.3
Rabi	30.8	35.2	28.2	32.2
Hot weather	10.9	12.4	9.8	11.1
<b>Total</b>	<b>71.4</b>	<b>81.4</b>	<b>84.5</b>	<b>96.5</b>

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted			Capacity factor	
				For irrigation		For Power House No. I		
	Normal	Maximum	Minimum	Alt. I	Alt. II		Alt. I	Alt. II
	.....inches.....			.....T.M.C.....				
June	4.5	10.2	0.2	15th June to 14th October				
July	8.0	16.0	1.4					
August	4.2	12.7	0.7					
September	5.0	11.4	0.2	3.5	3.0	1.5	0.63	0.41
October	3.5	12.0	0.1					
November	1.3	14.0	Nil	15th October to 14th February				
December	0.2	1.3	„					
January	0.1	3.5	„	2.6*	2.8	1.3	0.46	0.38
February	0.1	1.4	„					
March	0.2	1.9	„	15th February to 14th June				
April	0.8	5.6	„					
May	1.4	4.8	„	3.8*	4.1	1.5	0.68	0.57
<b>Total</b>	<b>29.3</b>			<b>9.9</b>	<b>9.9</b>	<b>4.3</b>		

\*Requirements of 80 percent of perennial crops from 15th October to 14th April will be met from wells

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 30 percent, sandy loam to clayey loam 35 percent and clayey loam to clay 35 percent. Depth of soils 18 inches and more in the entire C. C. A.

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			Two seasons'			Kharif						continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops					Total area (T. acres)	
Sugar-cane	Others		Cotton	Others		Paddy	Jowar	Bajri	Groundnut	Others		
0.2	0.1	0.3	—	0.9	0.8	1.6	14.3	19.4	11.7	27.1	67.4	

Rabi				continued from above
Percentage of principal crops		Total area (T. acres)	Total cropped area (T. acres)	
Wheat	Jowar			
1.9	22.8	22.5	91.0	

15. (a) Proposed pattern of irrigated cultivation

Perennial				Two seasonal		Kharif		continued below	
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops			Total area (T. acres)
Sugarcane	Others		Long staple cotton			Others			
Alternative I	12.8	2.5	10.7	13.3	9.5	13.3	9.5		
Alternative II	2.8	1.4	3.5	24.6	20.8	26.3	22.2		

continued from above	Rabi		Hot weather		Grand Total (T. acres)
	Percentage of principal crops		Percentage of principal crops		
	Total area (T. acres)		Total area (T. acres)		
	Jowar		Groundnut & Paddy		
Alternative I	43.1	30.8	15.3	10.9	71.4
Alternative II	33.4	28.2	11.6	9.8	84.5

## (b) Are there any rules for regulating crop pattern ?

No, but sanctions will be regulated to conform to the proposed crop pattern

## 16. Duty and Delta at distributory head (as anticipated)

	Duty (acres per mean cusec)			Delta (feet)			
	Kharif	Rabi	Hot weather	Kharif	Rabi	Hot weather	Total
Plantains	65	70	50	3.8	3.5	4.8	12.1
Other Perennials	100	100	75	2.4	2.4	3.2	8.0
Long staple cotton	200	400	100	1.2	0.6	2.4	4.2
Kharif	200	—	—	1.2	—	—	1.2
Rabi	—	200	—	—	1.2	—	1.2
Hot weather	—	—	100	—	—	2.4	2.4

Overall delta at canal head Alternative I - 3.2 feet

Alternative II - 2.7 feet

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

## (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

1,100 wells, each irrigating about 3 acres of seasonal crops (well irrigation 3,300 acres); area under well irrigation is excluded from the C.C.A. of the project.

## 18. Quantum of river supplies available in relation to withdrawals

The river has been gauged at Dhoni from 1907 to 1926; supplies available in 14 years out of 17

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## POWER ASPECTS

19. River supply proposed to be diverted and operation head for Alternative I (Alternative II will not be substantially different)

<i>Alternative I</i>				
	<i>Range of operation head (feet)</i>		<i>Supply passing through turbines (cusecs)</i>	
	<i>Power house No. I (at foot of dam)</i>	<i>Power house No. II at the head regulator of canal</i>	<i>Power house No. I</i>	<i>Power house No. II</i>
15th June to	65 to	30 to	143	334
14th October	125	80		
15th October	125	80	113	246
to 14th	to	to		
February	100	57		
15th February	100	57	165	365
to 30th	to	to		
April	65	30		
	<b>Total</b>		<b>4.42 T.M.C.</b>	<b>9.91 T.M.C.</b>

20. Proposed disposal of tail-race waters

Tail-race water from Power House No. I will flow down the river for use lower down (17C 3-K.1-M.2) and those from Power House No. II will be used for irrigation on the Dhom Canal

21. Quantum of river supplies available in relation to withdrawals

See item 18 above

## GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects ; financial return

Nil

23. Extent and type of area submerged by reservoir

Culturable 4,000 acres; waste lands 1,000 acres

24. to 27. Not available

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture; generation of power (2,000 kW. continuous and 3,000 kW. intermittent at 60 percent load factor)

# PATKHAL PROJECT

17C.3-K.1-M.2

1. **Name of State** Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**  
Irrigation scheme; flow-cum-storage; C. C. A. 186,600 acres
3. **Source of supply**
  - i) Krishna at Patkhal
  - ii) Venna at Satara/Krishna
  - iii) Yerala at Ramapur/Krishna

Utilisation upstream:  
existing : Nehr tank  
proposed : considerable
4. **Description of the reservoir or tank**

	<i>Krishna at Patkhal</i>	<i>Venna at Satara</i>	<i>Yerala at Ramapur</i>
Live storage T. M. C.	3.7	4.0	1.9
Dead storage „	0.8	1.4	0.3
Carry-over „	1.7	1.7	0.3
Annual reservoir losses T. M. C.	0.5	0.6	0.3
Filling period	15th June to 30th Sep.		
Depletion period	15th June to 14th June		
Catchment area (square miles)	356	115	909
Area submerged (acres)	2,600	3,400	2,400
Full reservoir level R.L.	2,155	2,147	2,008
Dead storage level R.L.	2,100	2,110	1,971

## 5. Description of the headworks

	<i>Krishna at Patkhal</i>	<i>Venna at Satara</i>	<i>Yerala at Ramapur</i>
Dam :	earthen, with central gated spillway, 8,000 feet long and 125 feet high	masonry, with gated spillway in centre and earthen flanks, 5,500 feet long and 127 feet high	earthen, with open channel spillway in left flank, 3,700 feet long and 75 feet high
Spillway :	capacity 130,000 cusecs	capacity 73,500 cusecs	capacity 210,000 cusecs
Outlets :	one, left flank, capacity 1,600 cusecs	one, left flank, capacity 1,200 cusecs	one, left flank, capacity 800 cusecs

**6. Description of the canals**

Patkhal Canal (contour); left bank; 160 miles long ; perennial ; lined ; authorised capacity Alternative I-1,170 cusecs Alternative II-1,575 cusecs

Venna Feeder (contour); 4 miles long ; lined ; capacity 1,200 cusecs falls into Patkhal reservoir

Yerala Feeder (contour); 0.1 mile long ; unlined ; capacity 800 cusecs; falls into Patkhal Canal at its mile 90

**7. (a) Nature of investigations carried out up-to-date**

Field investigations yet to be undertaken, present proposals based mainly on studies

(b) Not available

8. Not available

**IRRIGATION ASPECTS****9. Gross commanded area and culturable commanded area, district-wise**

	<i>Names of districts</i>		<i>Total</i>
	<i>Satara</i>	<i>Sangli</i>	
	<i>thousand acres</i>		
G.C.A.	58.5	151.5	210.0
C.C.A.	52.6	136.4	189.0
	Deduct irrigation under wells		2.4
	Net C.C.A.		186.6

**10. Area proposed to be irrigated annually and intensity of irrigation**

	<i>Alternative I</i>		<i>Alternative II</i>	
	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation</i>	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation</i>
	<i>thousand acres</i>	<i>percentage</i>	<i>thousand acres</i>	<i>percentage</i>
Perennial	24.5	13.1	7.6	4.1
Two seasonal	21.0	11.3	Nil	—
Long staple cotton	Nil	Nil	45.9	24.6
Kharif	19.6	10.5	68.9	36.9
Rabi	67.9	36.4	26.0	13.9
Hot weather	7.0	3.7	4.6	2.5
Total	140.0	75.0	153.0	82.0

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted		Capacity factor	
	Normal	Maximum	Minimum	Alter-native I	Alter-native II	Alter-native I	Alter-native II
	.....inches.....			.....T. M. C.....			
June	4.0	10.7	0.2	15th June to 14th Oct.			
July	6.5	19.2	1.3	7.7	8.1	0.62	0.49
August	4.0	14.2	1.8				
September	5.0	9.9	0.3				
October	3.0	9.3	0.3	15th Oct. to 14th Feb.			
November	1.2	9.9	Nil	5.6†	4.2	0.45	0.25
December	0.3	3.9	„				
January	0.1	3.3	„				
February	0.05	0.5	„	15th Feb. to 14th June			
March	0.2	3.1	„	6.7†	7.7	0.55	0.47
April	0.8	3.6	„				
May	1.6	7.9	„				
<b>Total</b>	<b>26.75</b>			<b>20.0</b>			

† Requirements of 80 percent of perennial crops from 15th Oct to 14th April will be met from wells.

12. Not available

## 13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 30 percent ; sandy loam to clayey loam 30 percent and clayey loam to clay 40 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

## 14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial						Two seasonal				continued below
Percentage of principal crops				Total area (T. acres)	Percentage of principal crops		Total area (T. acres)			
Sugarcane		Others			Others					
0.6		0.5		1.7	4.0		6.3			

continu- ed from above	Kharif					Hot weather			Total cropped area (T. acres)	
	Percentage of principal crops					Total area (T. acres)	Percentage of principal crops			Total area (T. acres)
	Paddy	Jowar	Bajra	Groundnut	Others		Wheat	Jowar		
	0.9	36.1	11.3	18.2	19.4	134.8	2.0	7.0	14.2	157.0



## 15. (a) Proposed pattern of irrigated cultivation

Perennial			Two seasonal		Long staple cotton		continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage	Total area (T. acres)	
Sugarcane	Others		Others	(T. acres)		(T. acres)	

## Alternative I

15.0	2.5	24.5	15.0	21.0	—	Nil
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## Alternative II

3.0	2.0	7.6	—	Nil	30.0	45.9
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continued from above	Kharif		Rabi		Hot weather		Grand Total (T. acres)
	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
	Cereals		Jowar		Others		

## Alternative I

14.0	19.6	48.5	67.9	5.0	7.0	140.0
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## Alternative II

45.0	68.9	17.0	26.0	3.0	4.6	153.0
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## (b) Are there any rules for regulating crop pattern ?

No; but sanctions will be regulated to conform to the proposed crop pattern

## 16. Duty and Delta at distributory head (as anticipated)

Crop	Duty (acres per mean cusec)			Delta (feet)			Total
	Kharif	Rabi	Hot weather	Kharif	Rabi	Hot weather	
Plantain/Sugarcane	65	70	50	3.8	3.5	4.8	12.1
Other perennials	100	100	75	2.4	2.4	3.2	8.0
Long staple cotton	200	400	100	1.2	0.6	2.4	4.2
Kharif	200	—	—	1.2	—	—	1.2
Rabi	—	200	—	—	1.2	—	1.2
Hot weather	—	—	100	—	—	2.4	2.4

The Delta given above are for such areas as receive canal water only. For areas which will also receive well water, the delta will be less

## Overall delta at Canal head

Alternative I	3.3 feet	Alternative II	3.0 feet
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17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

- (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

About 800 wells, each capable of irrigating about 3 acres, the area under wells (2,400 acres) is excluded from the C.C.A.

18. Quantum of river supplies available in relation to withdrawals

River supply data not available; Ambeghar Storage (18C.3-K.1-M.3) will supply 1.8 T.M.C. of stored waters and Dhoni Storage (16 C.3-K.1-M.1) will supply 2.9 T.M.C. of stored water for use by Patkhal Canal

19. to 21. Not applicable

#### GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Nil

23. Extent and type of area submerged by reservoir (acres)

	<i>Patkhal</i>	<i>Venna</i>	<i>Yerala</i>
Culturable	2,100	2,700	1,900
Forest	—	—	—
Waste	500	700	500
<b>Total</b>	<b>2,600</b>	<b>3,400</b>	<b>2,400</b>

The entire submerged area would be in Maharashtra

24. to 26. Not available

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

# VENNA PROJECT

18C.3-K.1-M.3

1. Name of State Maharashtra (formerly in Bombay)

2. Scope of the scheme or system

Multi-purpose ; flow-cum-storage ; irrigation, C. C. A. 28,300 acres ; power. 7,500 kW. installed

3. Source of supply

Venna at Mahabelashwar and Ambeghar/Krishna

Utilisation upstream : nil

4. Description of the reservoir or tank

	Mahabelashwar Storage	Ambeghar Storage
Live storage (T.M.C.)	1.30	4.50
Dead storage (T.M.C.)	0.10	0.50
Carry-over (T.M.C.)	0.20	0.10
Annual reservoir losses (T.M.C.)	0.20	0.70
Filling period	15th June to 30th Sep.	
Depletion period	15th June to 14th June	
Catchment area (square miles)	4	24
Area submerged (acres)	500	1,700
Full reservoir level R.L.	4,270	2,570
Minimum pond level „	4,175	2,445
Dead storage level „		

5. Description of the headworks

Dam :	masonry, 2,200 feet long, 180 feet high	masonry with earthen flanks, 3,600 feet long, 210 feet high
Spillway :	central gated, capacity 10,500 cusecs	central gated, capacity 32,000 cusecs
Outlets :	one in left flank, capacity 50 cusecs	one in left flank, capacity 390 cusecs

6. Description of the canals

- (i) Power canal (contour) ; left bank ; 3 miles long ; unlined ; authorised capacity 50 cusecs
- (ii) Venna canal (contour) ; left bank ; 26 miles long ; perennial ; unlined ; authorised capacity 330 cusecs

## 7. (a) Nature of investigations carried out up-to-date

Present proposals based mainly on topo-sheet studies

(b) Not available

8. Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

District	Satara		
G.C.A.		32,500	acres
C.C.A.		28,600	"
Deduct area under well irrigation		300	"
Net C.C.A.		28,300	"

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated		Intensity of irrigation	
Perennial	3,000	acres	10.6	percent
Two seasonal	1,000	"	3.5	"
<i>Kharif</i>	10,000	"	35.3	"
<i>Rabi</i>	10,000	"	35.3	"
Hot weather	1,000	"	3.5	"
<b>Total</b>	<b>25,000</b>	<b>"</b>	<b>88.2</b>	<b>"</b>

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			.....T. M. C.....	
June	7.0	13.0	0.1	15th June to 14th Oct.	
July	15.0	33.7	2.7	0.90	0.22
August	9.0	20.4	2.0		
September	5.0	13.5	0.5		
October	4.0	11.5	0.2	15th Oct. to 14th Feb.	
November	1.6	13.2	Nil	1.50	0.37
December	0.2	13.7	„		
January	0.1	1.5	„		
February	0.1	1.0	„	15th February to 14th June	
March	0.1	2.4	„	0.80	0.20
April	1.0	3.9	„		
May	1.1	6.7	„		
Total	44.5			3.20	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 35 percent, sandy loam to clayey loam 35 percent and clayey loam to clay 30 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			Kharif						continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops					Total area (T. acres)	
Sugarcane	Others		Paddy	Jowar	Bajri	Groundnut	Others		
0.2	0.2	0.1	3.4	19.0	6.5	11.0	41.3	23.6	

continued from above	Rabi			Total cropped area (T. acres)
	Percentage of principal crops		Total area (T. acres)	
	Wheat	Jowar		
	1.8	16.6	5.2	28.3

15. (a) Proposed pattern of irrigated cultivation

Perennial			Two seasonal		Kharif		continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
Sugarcane	Others		Others		Paddy		
9.6	2.4	3.0	4.0	1.0	40.0	10.0	

continued from above	Rabi			Total area (T. acres)	Hot weather		Grand Total (T. acres)
	Percentage of principal crops				Percentage of principal crops	Total area (T. acres)	
	Wheat	Jowar	Gram		Others		
	15.1	49.0	20.0	10.0	4.0	1.6	25.0

**(b) Are there any rules for regulating crop pattern ?**

No, but sanctions will be regulated so as to conform to the proposed crop pattern

**16. Duty and Delta at distributary head (as anticipated)**

	<i>Duty</i> (acres per mean cusec)			<i>Delta</i> (feet)			
	<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Total</i>
<b>Plantains/</b>							
<b>Sugarcane</b>	200	70	50	1.2	3.5	4.8	9.5
<b>Other perennial</b>	300	100	75	0.8	2.4	3.2	6.4
<b>Paddy (superior)</b>	150	400	—	1.6	0.6	—	2.2
<b>Gram</b>	—	400	—	—	0.6	—	0.6
<b>Rabi Wheat</b>	—	150	—	—	1.6	—	1.6
<b>Rabi Jowar</b>	—	200	—	—	1.2	—	1.2

Overall annual delta at canal head 2.9 feet

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

**(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

110 wells, each capable of irrigating about 3 acres of seasonal crops (well irrigation about 330 acres). The area under well irrigation is excluded from the C.C.A.

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**POWER ASPECTS****19. River supply proposed to be diverted and operation head**

	<i>Range of operation head</i> (feet)	<i>Supply passing through turbines</i> (cusecs)
15th June to 14th Oct.	1,475	38
15th Oct. to 14th Feb.	1,475	38
15th Feb. to 14th June	1,475	38

**1.2 T.M.C.**

**20. Proposed disposal of tail-race waters**

The tail-race waters will flow down into Ambeghar storage to be used for irrigation through Venna Canal.

**21. Quantum of river supplies available in relation to withdrawals**

Same as item 18 above

**GENERAL****22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

**23. to 26. Not available****27. Not applicable****28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture and generation of power



सत्यमेव जयते

## URMODI PROJECT

19C.3-K.1-M.4

1. **Name of State** Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**  
Irrigation, flow-cum-storage ; C. C. A 29,400 acres
3. **Source of supply**  
Urmodi, Krishna  
Existing upstream utilisation, 0.20 T.M.C. for water supply to Satara city.
4. **Description of the reservoir or tank**

Live storage	3.10 T. M. C.
Dead storage	0.30 "
Carry-over	0.30 "
Annual reservoir losses	0.50 "
Filling period	15th June to 30th Sep.
Depletion period	15th June to 14th June
Catchment area	43 square miles
Area submerged	2,700 acres
Full reservoir level	R. L. 2,240
Minimum pond level	R. L. 2,165
5. **Description of the headworks**

Dam :	earthen, 5,000 feet long , 130 feet high
Spillway :	masonry, capacity 44,000 cusecs
Outlets :	one in right flank, capacity 75 cusecs and one in left flank, capacity 250 cusecs
6. **Description of the canals**  
Urmodi Right Bank Canal (contour); 15 miles long; perennial; unlined; authorised capacity 75 cusecs  
Urmodi Left Bank Canal (contour); 31 miles long; perennial; unlined; authorised capacity 245 cusecs
7. (a) **Nature of investigations carried out up-to-date**  
Field investigations yet to be undertaken; present proposals based mainly on topo-sheet studies  
(b) Not available



8. Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

District Satara

	<i>Right Bank Canal</i>	<i>Left Bank Canal</i>	<i>Total</i>
	<i>.....thousand acres.....</i>		
G. C. A.	8.7	28.6	<b>37.3</b>
C. C. A.	7.0	22.9	<b>29.9</b>
Deduct area under well irrigation			<b>0.5</b>
Net C. C. A.			<b>29.4</b>

## 10. Area proposed to be irrigated annually and intensity of irrigation\*

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation</i>
Perennial	3,100 acres	10.5 percent
Two seasonal	2,100 "	7.1 "
<i>Kharif</i>	5,500 "	18.7 "
<i>Rabi</i>	12,900 "	43.9 "
Hot weather	600 "	2.0 "
<b>Total</b>	<b>24,200 "</b>	<b>82.2 "</b>

\*The State Government have also worked out an alternative crop pattern to include long staple cotton which gives an annual irrigation of 25,800 acres with no change in the annual water diversion

## 11. Normal rainfall and river supply proposed to be diverted

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
	<i>.....inches.....</i>			<i>..... T. M. O. ....</i>	
June	7.0	13.0	0.1	15th June to 14th Oct.	
July	14.0	33.7	2.7	1.10	<b>0.33</b>
August	8.0	20.4	2.0		
September	5.0	13.5	0.5		
October	4.0	11.5	0.2	15th October to 14th Feb.	
November	1.6	13.2	Nil	1.70	<b>0.50</b>
December	0.3	3.7	"		
January	0.1	1.5	"		
February	0.1	1.0	"	15th Feb. to 14th June	
March	0.2	2.4	"	0.80	<b>0.24</b>
April	0.9	3.9	"		
May	1.5	6.7	"		
<b>Total</b>	<b>42.7</b>			<b>3.60</b>	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 35 percent; sandy loam to clayey loam 35 percent and clayey loam to clay 30 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			Kharif						Rabi			Total cropped area (T. acres)
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops					Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
Sugarcane	Others		Paddy	Jowar	Bajri	Ground- nut	Others		Wheat	Jowar		
0.2	0.3	0.1	3.3	18.8	6.6	11.3	41.3	23.0	1.7	16.5	5.6	28.7

15. (a) Proposed pattern of irrigated cultivation

Perennial			Two seasonal		Kharif		continued below	
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)
Sugarcane and plantains	Others		Others					
10.2	2.6	3.1	8.7	2.1	22.7	5.5		

continued from above	Rabi			Hot weather		Grand Total (T. acres)		
	Percentage of principal crops			Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
	Wheat	Jowar	Gram		Others			
	31.8	10.2	11.2	12.9	2.6	0.6	24.2	

(b) Are there any rules for regulating crop pattern?

No, but sanctions will be regulated to conform to the proposed crop pattern

16. Duty and Delta at distributory head (as anticipated)

	Duty (acres per mean cusec)			Delta (feet)			Total
	Kharif	Rabi	Hot weather	Kharif	Rabi	Hot weather	
Plantains	200	70	50	1.2	3.2	4.8	9.2
Other perennial	300	100	75	0.8	2.5	3.2	6.5
Paddy (superior)	150	400	—	1.6	0.6	—	2.2
Rabi	—	200	—	—	1.2	—	1.2
Hot weather	—	—	100	—	—	2.4	2.4

Overall delta at canal head 3.9 feet

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

- (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

260 wells, each irrigating about 2 acres of seasonal crops. Well irrigation about 520 acres excluded from the C. C. A.

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not available

#### GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. to 26. Not available

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture



**KOYNA HYDRO-ELECTRIC PROJECT****20 C.3-K.1-M.5****STAGE III**

1. Name of State **Maharashtra (formerly in Bombay)**
2. Scope of the scheme or system  
Power generation; flow-cum-storage; installed capacity 60,000 kW.
3. Source of supply  
Tail-race of Koyna Main Power House
- 4.-5. Same as 4C.1-K. 1-M.1
6. Description of the canal  
Lined power channel from the tail-race of the main Power House, capacity **2,250 cusecs**;  
1½ mile long; leading to tail-race Power House penstocks
7. Actual or probable date of beginning of construction **IV Plan**
8. Probable date of beginning of operation **1969**
9. to 18. Not applicable

**POWER ASPECTS****19. River supply proposed to be diverted and operation head**

Month	Range of operation head (feet)	Supply passing through turbines (cusecs)
June	Constant head of 250 feet	2,210
July		2,240
August		2,140
September		2,070
October		2,080
November		2,090
December		2,100
January		2,120
February		2,130
March		2,140
April		2,180
May		2,180
Total		67.50 T.M.C.

**20. Proposed disposal of tail-race waters**

The tail-race waters from the tail-race Power House will be partly utilised for irrigation of 16,000 acres of perennial crops and orchards in the Ratnagiri District

**21. Quantum of river supplies available in relation to withdrawals**

Same as per 4C.1-K.1-M.1

**GENERAL****22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Water supply to Dabhol and Govalkot ports; and villages.

**23.** Not applicable

**24.-25.** Not available

**26.** Not applicable

**27.** Not available

**28. Main features and purpose of the scheme**

Power generation



# KOYNA HYDRO-ELECTRIC PROJECT

21C.3.K.1-M.6

## STAGE-IV

1. Name of State Maharashtra (formerly in Bombay)

2. Scope of the scheme or system

Power scheme; flow-cum-storage; 400,800 kW. installed

3. Source of supply

- 1) Koyna at Helwak/Krishna
- 2) Morna at Ambrole/Koyna/Krishna
- 3) Wang at Banpuri/Koyna/Krishna
- 4) Warna at Khujgaon/Krishna
- 5) Bambavade nalla/Kadvi/Warna/Krishna
- 6) Ambardi nalla at Karanjoshi/Kadvi/Warna/Krishna

4. Description of the reservoir or tank

	<i>Ambrole</i>	<i>Banpuri</i>	<i>Raising of Dam at Khujgaon</i>	<i>Bambavade- wadi</i>	<i>Karanjoshi</i>	<i>Helwak storage</i>
Live storage (T.M.C.)	11.00	3.70	15.10 (additional)	1.50	1.50	as in
Dead storage (T.M.C.)	1.00	0.40	45.00	0.30	1.40	Stage
Carry-over (T.M.C.)	0.80	—	6.50 (3.30 additional)	—	—	I and II
Annual reservoir losses (T.M.C.)	2.00	0.50	0.90 (additional)	0.70	0.30	
Filling period	.....		15th June to 30th Sep.....			
Depletion period	.....		15th June to 14th June.....			
Catchment area (square miles)	38.0	23.0	202.0	16.0	12.0	
Area submerged (acres)	3,800	1,500	1,400 (additional)	1,400	1,000	
Full reservoir level R.L.	2,088	2,200	2,000	1,915	1,975	
Dead storage level R.L.	1,962	2,100	1,950	1,875	1,935	

## 5. Description of the headworks

Dam :	earthen,	earthen,	masonry,	earthen,	earthen,
	6,000 feet	5,200 feet	3,170 feet	7,500 feet	4,600 feet long,
	long, 200	long, 165	long, 190	long, 130	155 feet
	feet high	feet high	feet high	feet high	high
Spillway :	masonry,	open,		right flank,	central,
	capacity	capacity	—	capacity	capacity
	41,000	30,800		25,400	21,400
	cusecs	cusecs		cusecs	cusecs
Outlets :	left flank,	right flank,		right flank,	right flank,
	capacity	capacity	—	capacity	capacity
	1,220	795 cusecs		300 cusecs	550 cusecs
	cusecs				

## 6. Description of the canals

- 1) Feeder Canal ex-Ambrole storage (contour); 28 miles long; perennial; unlined; dropping in Krishna upstream of Khodshi weir; capacity 1,220 cusecs
- 2) Wang Power Canal (contour); 21 miles long; capacity 200 cusecs; linking with Koyna Canal in first mile of Koyna Canal delivering 5.9 T.M.C. annually
- 3) Remodelling of Warna Left Bank Canal from mile 0 to 50 and extension from mile 50 to mile 90, authorised capacity 1,950 cusecs, to feed the area under Koyna Canal

## 7. (a) Nature of investigations carried out up-to-date

Preliminary surveys completed; present proposals are however mainly based on topo-sheet studies

## (b) Actual or probable date of beginning of construction

IV Plan

## 8. Probable date of beginning of operation

1972

## IRRIGATION ASPECTS

## 9. to 18.

No new irrigation is proposed under this project. The supplies released from Koyna dam for the Koyna Irrigation Project (6C.2-K.1-M.1) are proposed to be diverted west-ward for power generation and replaced by supplies to be obtained from the works described in items 4 to 6 above

## POWER ASPECTS

## 19. River supply proposed to be diverted and operation head

Range of operation head (feet)			
Month	Main Power House at Mankarwadi No. 1	Power House for tail-race development No. 2	continued below
1. Main Power House at Mankarwadi- 348,000 kW. (additional)	June 1,578	Constant head of 250 feet	
	July 1,558		
	August 1,627	"	
	September 1,680	"	
2. Power House for tail-race development- 43,000 kW. (additional)	October 1,674	"	
	November 1,665	"	
	December 1,655	"	
	January 1,644	"	
3. Power House on Wang Canal- 2,300 kW.	February 1,635	"	
	March 1,623	"	
	April 1,596	"	
4. Power House at Head of Khujgaon Canals- 7,500 kW.	May 1,594	"	

Supply passing through turbines (cusecs)					
continued from above	Power House in mile No. 21 of Wang Canal No. 3	Power House at Canal heads Khujgaon Dam No. 4	For both Power Houses No. 1. & 2.	Power House in mile No. 21 of Wang Canal No. 3	Power House at Khujgaon on Dam No. 4
Constant head of 175 feet			1,650	256	1,370
" June to Sep.			1,670	256	1,370
" 20 feet to 50 feet			1,600	256	1,370
"			1,550	256	1,370
"			1,550	118	900
"			1,560	118	900
" Oct. to Jan.			1,570	118	900
" 50 feet to 38 feet			1,580	118	900
"			1,590	189	2,300
" Feb. to May			1,600	189	2,300
" 38 feet to 20 feet			1,630	189	2,300
"			1,630	189	2,300
Total			50.40 T.M.C.	5.90 T.M.C.	47.90 T.M.C.

\*in addition to 67.5 T.M.C. shown under 60.1-K.1-M.1



**20. Proposed disposal of tail-race waters**

Tail-race from Power House Numbers 1 and 2 will be utilised for industries at Govalkot Port

Tail-race from Power House in mile No. 21 of Wang Canal will be completely utilised for irrigation in Koyna Canal **6C.2-K.1-M.1**

Tail-race from Power House Number 4 will be completely utilised for irrigation partly on the Warna Right Bank Canal and partly on the Warna Left Bank Canal

**21. Quantum of river supplies available in relation to withdrawals**

For River supply at Helwak see item 21 of **6C.1-K.1-M.1**

River supply data for other sites not available

**GENERAL****22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

**23. Extent and type of area submerged by reservoir (acres)**

	Khujsaon	Karanjoshi	Bambavade	Banpuri	Ambrole
Culturable	1,300	600	1,000	1,200	3,000
Forest	100	—	—	—	—
Waste lands	—	400	400	300	800
<b>Total</b>	<b>1,400</b>	<b>1,000</b>	<b>1,400</b>	<b>1,500</b>	<b>3,800</b>

**24.-25.** Not available

**26.** Not applicable

**27.** Not available

**28. Main features and purpose of the scheme**

Power Generation

**29. Special features of the scheme**

(a) Will divert 50.40 T.M.C. outside the Krishna drainage basin

(b) The Power house at the toe of the Koyna Dam, 40,000 kW. provided under Stage I and II, will become redundant in most years.

**KOYNA IRRIGATION SCHEME  
STAGE II**

22C.3-K.1-M.7

1. **Name of State**                      Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**  
Irrigation scheme ; flow-cum-storage ; additional C. C. A. 56,900 acres
3. **Source of supply**  
(i) Koyna at Helwak/Krishna                      (ii) Krishna at Khodshi Weir  
No upstream utilisation on the Koyna; considerable utilisation proposed on the Krishna above Khodshi
4. **Description of the reservoir or tank**  
Reservoir on Koyna at Helwak  
Same as per 4C.1-K.1-M.1
5. **Description of the headworks**  
Same as per 6C. 2-K.1-M.1. The pumping for Right Bank Canal will be raised from 675 cusecs to 1,620 cusecs and for Left Bank Canal from 885 cusecs to 1,220 cusecs.
6. **Description of the canals**  
(i) Koyna Canal (contour) ; lining and extension to mile 50; perennial ; lined; authorised capacity 1,620 cusecs  
(ii) Link Canal (contour); capacity to be raised to 1,220 cusecs]  
(iii) Krishna Canal (contour); to be lined and extended to 76 miles; perennial; authorised capacity 1,220 cusecs
7. (a) **Nature of investigations carried out up-to-date**  
Project report under preparation  
(b) **Actual or probable date of beginning of construction**                      IV Plan
8. **Probable date of beginning of operation**                      1970

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

	Names of districts			Grand Total	
	Satara	Sangli	Kolhapur	G. C. A.	C. C. A.
	..... thousand acres .....				
Koyna canal					
G. C. A.	19.3	112.7	—	132.0	—
C. C. A.	17.3	101.7	—	—	119.0
Link canal					
G. C. A.	2.1	—	—	2.1	—
C. C. A.	2.0	—	—	—	2.0
Krishna canal					
G. C. A.	11.2	72.0	14.0	97.2	—
C. C. A.	10.0	64.8	12.6	—	87.4
<b>Total</b>				<b>231.3</b>	<b>208.4</b>
Deduct C.C.A. on Koyna Irrigation scheme (6C 2-K.1-M.1)					101.5
Additional C. C. A.					56.9

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated			Intensity of irrigation
	Koyna canal	Krishna canal & link canal	Total	
	..... thousand acres .....			..... percentage .....
*Perennial	11.6	8.7	20.3	10.0
Long staple cotton	34.7	26.3	61.0	30.0
Two seasonal	10.0	7.5	17.5	8.6
Kharif (Paddy)	18.5	14.0	32.5	16.0
Kharif	40.9	30.9	71.8	35.4
Rabi (Gram)	18.5	14.0	32.5	16.0
Hot weather (groundnut)	11.1	8.3	19.4	9.5
<b>Total</b>	<b>145.3</b>	<b>109.7</b>	<b>255.0</b>	<b>125.5</b>
Deduct area irrigated by				
(i) existing Krishna canal				6.2
(ii) Koyna irrigation scheme stage I (6C.2-K.1-M.1)				104.2
<b>Total</b>				<b>110.4</b>
Additional irrigation				144.6 acres

**11. Normal rainfall and river supply proposed to be diverted**

(Rainfall same as per item 11 of 6C.2-K.1-M.1)

River supply proposed to be diverted		Capacity factor	
Koyna canal	Krishna canal & link canal	Koyna canal	Krishna canal
15th June to 14th October			
10.30	7.70	0.60	0.60
15th October to 14th February			
4.70	3.60	0.27	0.28
15th February to 14th June			
7.60	5.70	0.45	0.45
<b>22.60</b>	<b>17.00</b>		
Total diversion by both canals		<b>39.60 T.M.C.</b>	
Deduct (i) existing diversion under Krishna canal		1.40	„
(ii) diversion under Koyna Irrigation project stage I		29.40	„
		<b>30.80</b>	„
Additional diversion		8.80	„

**12-13.** Not available**14. Existing pattern of cultivation in the area proposed to be irrigated**

Perennial			Kharif						continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops					Total area (T. acres)	
Sugarcane	Others		Jowar	Paddy	Groundnut	Others	Pulses		
Koyna canal									
2.5	0.4	3.5	20.2	2.0	22.0	1.6	6.4	62.1	
Krishna & link canals									
2.5	0.1	2.3	18.6	2.7	18.1	1.5	3.0	43.6	
continued from above	Rabi				Hot weather			Total cropped area (T. acres)	
	Percentage of principal crops				Total area (T. acres)	Percentage of principal crops			Total area (T. acres)
	Jowar	Wheat	Pulses	Others		Groundnut	Others		
Koyna canal									
30.0	2.7	6.4	1.1	47.8	3.1	1.6	5.6	119.0	
Krishna & link canals									
27.3	3.6	3.0	4.0	33.9	2.6	2.5	4.5	89.4	

## 15. (a) Proposed pattern of irrigated cultivation

Perennial		Two seasonal		Long staple cotton		continued below
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
Plantain etc.		Two seasonal		L. staple cotton		

Koyana canal

8.0      11.6      6.9      10.0      23.9      34.7

Krishna &amp; link canals

7.9      8.7      6.8      7.5      24.0      26.3

continued  
from  
above

Kharif			Rabi		Hot weather		Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)		Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
Seasonal	Paddy		Gram		Groundnut		

Koyana canal

28.1    12.8    59.4    12.6    18.3    7.8    11.3    145.8

Krishna &amp; link canals

28.1    12.9    44.9    12.8    14.0    7.6    8.3    109.7

Total      255.0

## (b) Are there any rules for regulating crop pattern?

No ; but sanctions will be regulated to conform to the proposed crop pattern

## 16. Duty and Delta at distributory head (as anticipated)

	Duty (acres per mean cusecs)			Delta (feet)			
	Kharif	Rabi	Hot weather	Kharif	Rabi	Hot weather	Total
Perennial such as plantain/sugarcane	65	70	50	3.8	3.5	4.8	12.1
Paddy	65	400	—	3.8	0.6	—	4.4
Two seasonal	130	140	—	1.9	1.8	—	3.7
Long staple cotton	200	400	100	1.2	0.6	2.4	4.2
Kharif seasonal	200	—	—	1.2	—	—	1.2
Rabi Gram	—	400	—	—	0.6	—	0.6
Hot weather	—	—	100	—	—	2.4	2.4

Overall delta at canal head

3.6 feet

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

- (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom  
2,592 wells, each irrigating about 2 acres of seasonal crop (well irrigation about 5,300 acres). The area under well irrigation is excluded from C.C.A.

**18. Quantum of river supplies available in relation to withdrawals**

The adequacy or otherwise of river supplies will be governed by the requirements of other projects in Maharashtra and of a basin-wide plan.

**19. to 21.** Not applicable

**GENERAL**

**22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. Extent and type of area submerged by reservoir** Same as per ~~GO.2-K.1-M.1~~

**24. Total cost of the scheme** Rs. 17.37 lakhs

**25. Financial return of the scheme** 5.91 percent on irrigation outlay

**26. Cost per acre irrigated** Rs. 910

**27.** Not applicable

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture and ~~increase~~ in intensity of cultivation.



## WANG PROJECT

23C.3-K.1-M.8

1. Name of State Maharashtra (formerly in Bombay)

2. Scope of the scheme or system

Irrigation scheme; flow-cum-storage; C.C.A, 48,900 acres

3. Source of supply

Wang at Kadamwadi/Koyna/Krishna

Utilisation upstream : nil

4. Description of the reservoir or tank

Live storage	6.00 T. M. C.
Dead storage	1.40 „
Carry-over	0.50 „
Annual reservoir losses	0.70 „
Filling period	15th June to 30th Sep.
Depletion period	15th June to 14th June
Catchment area	51 square miles
Area submerged	2,800 acres
Full reservoir level	R. L. 2,145
Dead storage level	R. L. 2,080

5. Description of the headworks

Dam :	earthen, 4,600 feet long, 165 feet high
Spillway :	masonry, capacity 48,000 cusecs
Outlets :	head regulator in right flank, capacity 1,000 cusecs

6. Description of the canal

Wang Canal (contour); right bank; 53 miles long; perennial; unlined; authorised capacity 795 cusecs

## 7. (a) Nature of investigations carried out up-to-date

Preliminary surveys made. Present proposals are based mainly on topo-sheet studies

(b) Not available

8. Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

	Names of districts		Total
	Satara	Sangli	
	.....thousand acres.....		
G. C. A.	22.0	35.0	57.0
C. C. A.	19.2	30.8	50.0
Deduct area under wells			1.1
Net C.C.A.			48.9
Zone A : Annual rainfall 30 inches and above			25.4
Zone B : Annual rainfall below 30 inches			23.5

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated		Intensity of irrigation	
	.....thousand acres.....		.....percentage.....	
	Zone—A	Zone—B	Zone—A	Zone—B
Perennial	—	3.1	—	13.2
Two seasonal	—	3.4	—	14.5
Long staple cotton	—	6.3	—	26.8
Kharif : Paddy	23.0	—	90.6	26.8
Seasonal	—	6.3		
Rabi : Wheat	23.0	—	90.6	18.7
Jowar	—	4.4		
<b>Total</b>	<b>46.0</b>	<b>23.5</b>	<b>181.2</b>	<b>100.0</b>
Total for both zones	69,500 acres		142.1 percent	



## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall						River supply proposed to be diverted			Capacity factor
	Normal		Maximum		Minimum		Zone A	Zone B	Total	
	Zone A	Zone B	Zone A	Zone B	Zone A	Zone B				
	..... inches.....						..... T.M.C.....			
June	8.5	4.0	15.3	11.4	0.8	0.4	15th June to 14th Oct.			0.41
July	13.0	7.0	22.9	14.5	0.5	0.3	1.80	1.60	3.40	
August	9.0	4.0	17.8	14.6	0.8	0.2				
September	4.8	5.0	10.4	10.6	0.2	0.2				
October	4.5	4.0	12.4	9.9	0.6	Nil	15th Oct. to 14th Feb.			0.45
November	1.4	1.0	9.0	6.2	Nil	Nil	2.50	1.30	3.80	
December	0.2	0.3	2.8	4.9	"	"				
January	0.1	0.1	3.7	3.0	"	"				
February	Nil	0.1	0.6	1.4	"	"	15th Feb. to 14th June			0.18
March	0.2	0.2	4.8	1.8	"	"	Nil	1.50	1.50	
April	0.8	1.1	4.6	4.7	"	"				
May	1.7	1.7	7.3	6.9	"	"				
Total	44.2	28.5					4.30	4.40	8.70	

12. Not available

## 13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 30 percent ; sandy loam to clayey loam 25 percent and clayey loam to clay 45 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics

No

## 14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial		Two seasonal		Kharif						continued below
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops					Total area (T. acres)	
Sugarcane		Others		Paddy	Jowar	Bajri	Ground-nut	Others		
2.0	1.0	4.3	2.0	3.0	30.0	3.2	18.8	26.4	40.0	

continued from above

Rabi			Total cropped area (T. acres)
Percentage of principal crops		Total area (T. acres)	
Wheat	Jowar		
2.4	9.9	5.9	48.9

## 15. (a) Proposed pattern of irrigated cultivation

Perennial		Two seasonal		Kharif			continued below
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
Sugarcane, plantains		Others		Paddy	Others		
Zone A	—	—	—	50.0	—	23.0	
Zone B	13.2	3.1	14.5	3.4	—	26.8	6.3

continued rom above	Rabi			Cotton		Grand Total (T. acres)
	Percentage of pirncipal crops		Total area (T. acres)	Percentage of principle crops	Total area (T. acres)	
	Wheat	Jowar		Long Staple		
Zone A	5.0	—	23.0	—	—	46.0
Zone B	—	18.7	4.4	26.8	6.3	23 5
Total						69.5

## (b) Are there any rules for regulating crop pattern ?

No, but sanctions will be regulated to conform to the proposed crop pattern

## 16. Duty and Delta at distributory head (as anticipated)

	Duty (acres per mean cusec)			Delta (feet)			
	Kharif	Rabi	Hot weather	Kharif	Rabi	Hot weather	Total
(i) Perennial	65	70	50	3.7	3.5	4.8	12.0
(ii) Long staple Cotton	200	400	100	1.2	0.6	2.4	4.2
(iii) Two seasonal	130	140	—	1.9	1.8	—	3.7
(iv) Kharif others	200	—	—	1.2	—	—	1.2
(v) Paddy	150	400	—	1.6	0.6	—	2.2
(vi) Rabi Wheat	—	150	—	—	1.9	—	1.9
(vii) Rabi seasonal	—	200	—	—	1.2	—	1.2
Overall delta at canal head			2.9 feet				

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

**(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

About 500 wells irrigating about 1,100 acres ; excluded from the C.C.A.

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**19. to 21.** Not available

#### GENERAL

**22. Aspects other than irrigation and power ; water supply (month-wise), if and, required for these aspects, financial returns**

Nil

**23. Extent and type of area submerged by reservoir**

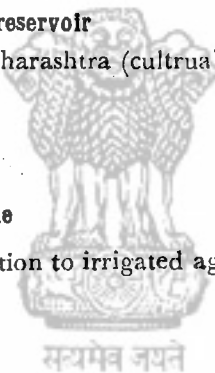
Entire submergence lies in Maharashtra (culturable 2,200 acres waste lands 600 acres

**24. to 26.** Not available

**27.** Not applicable

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture



## YERALWADI PROJECT

240. 3-K. 1-M.9

1. Name of State        Maharashtra (formerly in Bombay)
2. Scope of the scheme or system  
    Irrigation scheme ; flow-cum-storage ; C.C.A. 15,900 acres
3. Source of Supply  
    Yerala/Krishna  
    Upstream utilisation Nehr Tank

4. Description of the reservoir or tank

Live storage	0.70 T.M.C.
Dead storage	0.10 „
Carry-over	Nil
Annual reservoir losses	0.10 T.M.C.
Filling period	15 June June to 30th Sep.
Depletion period	15th June to 14th Feb.
Catchment area	296 square miles
Area submerged	1,300 acres
Full reservoir level	R.L. 2,280
Minimum pond level	R.L. 2,255

5. Description of the headworks

Dam : earthen, 5,000 feet long, 65 feet high  
Spillway : open channel, capacity 120,000 cusecs  
Outlets : one in right flank, capacity 90 cusecs

6. Description of canal

Yeralwadi Canal (contour) ; right bank ; 21 miles long ; two seasonal ; unlined ;  
authorised capacity 88 cusecs

7. (a) Nature of investigations carried out up-to-date

Project report under preparation

(b) Actual or probable date of beginning of construction

IV plan

8. Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district wise

	Names of districts		Total
	Satara	Sangli	
	.....thousand acres.....		
G.C.A.	8.0	12.0	20.0
C.C.A.	6.4	9.6	16.0
Deduct area under well irrigation			0.1
Net C.C.A.			15.9

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	Intensity of irrigation
Two seasonal	2,400 acres	15.1 percent
<i>Kharif</i>	1,700 „	10.7 „
<i>Rabi</i>	8,400 „	52.8 „
Total	12,500 „	78.6 „

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity
	Normal	Maximum	Minimum		
	.....inches.....			.....T.M.C.....	
June	4.0	17.7	Nil	15th June to 14th Oct.	
July	4.0	7.9	„	0.30	0.32
August	3.0	11.9	„		
September	5.0	11.9	0.7		
October	4.0	7.7	Nil	15th Oct. to 14 Feb.	
November	1.0	10.4	„	0.70	0.75
December	0.3	2.5	„		
January	0.1	5.5	„		
February	0.1	0.1	„	15th Feb. to 14th June	
March	0.2	1.3	„	Nil	
April	0.7	2.5	„		
May	1.4	6.6	„		
Total	23.8			1.00	

## 12. Not available

## 13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 35 percent, sandy loam to clayey loam 35 percent and clayey loam to clay 30 percent ; depth of soil 18 inches and more

- (b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

**14 Existing pattern of cultivation in the area proposed to be irrigated**

Two Seasonal			Kharif						Rabi			Total cropped area (T. acres)
Percentage of principal crops		Total area (T. acres)	Percentage of Principal crops					Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
Cotton	Others		Paddy	Jowar	Bajri	Ground- nut	Others		Wheat	Jowar		
0.2	2.9	0.5	0.4	16.9	21.2	5.9	41.3	13.6	2.7	8.5	1.8	15.9

**15. (a) Proposed pattern of irrigated cultivation**

Two Seasonal		Kharif		Rabi		Grand Total (T. acres)
Percentage of principal crops	Total area	Percentage of principal crops	Total area	Percentage of principal crops	Total area	
Chillies, cotton etc.	(T. acres)	Jowar and Ground-nut	(T. acres)	Jowar	(T. acres)	
19.2	2.4	13.6	1.7	67.2	8.4	12.5

- (b) Are there any rules for regulating crop pattern

No, but sanctions will be regulated to conform to the proposed crop pattern

**16. Duty and Delta at distributory head (as anticipated)**

	Duty (acres per mean cusec)		Delta (feet)		
	Kharif	Rabi	Kharif	Rabi	Total
Two seasonal	130	140	1.9	1.7	3.6
Kharif	200	...	1.2	...	1.2
Rabi	...	200	...	1.2	1.2
Overall delta at canal head	1.8 feet				

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

- (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

65 wells, each irrigating about 2 acres (well irrigation about 130 acres), area under well irrigation is excluded from the C.C.A.

**18. Quantum of river supplies available in relation to withdrawals**

Project requirements are available in 10 years out of 12 years for which data are available

19. to 21. Not applicable

**GENERAL**

22. Aspects other than irrigation and power; water supply (month-wise), If any, required for these aspects; financial returns

Nil

23. to 26. Not available

27. Not applicable

28. Main features and propose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture



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**PATHARPUNJ PROJECT****25C. 3-K.1M. 10**

- 1. Name of State** Maharashtra (formerly in Bombay)
- 2. Scope of the scheme or system**  
Multi-purpose; flow cum-storage; irrigation, C.C.A. 8,000 acres; power 30,000 kW. installed
- 3. Source of supply**  
Warna at Patharpunj/Krishna  
Utilisation upstream : nil
- 4. Description of the reservoir or tank**

Live storage	3.30 T.M.C.
Dead storage	0.20 „
Carry-over	0.40 „
Annual reservoir losses	0.40 „
Filling period	15th June to 14th Sept.
Depletion period	15th June to 14th June
Catchment area	9 square miles
Area submerged	2,240 acres
Full reservoir level	R. L. 2,795
Dead storage level	R. L. 2,715
- 5. Description of the headworks**

Dam	:	masonry, 2,000 feet long, 160 feet high
Spillway	.	masonry gated, capacity 17,000 cusecs
Outlets	:	intake tower, capacity 200 cusecs
- 6. Description of the canal**  
A short power channel; capacity 200 cusecs, will take off directly from storage to feed the penstocks 1.5 miles long
- 7. (a) Nature of investigations carried out up-to-date**  
Preliminary surveys of dam site completed, other investigations yet to be undertaken  
**(b)** Not available
- 8.** Not available



- 9. to 18.** The tail race waters will be utilised partly for an annual irrigation of 6,000 acres, perennial, in Ratnagiri District, other particulars not available

#### POWER ASPECTS

**19. River supply proposed to be diverted and operation head**

	Range of operation head (feet)	Supply passing through turbines (cusecs)
15th June to 14th Oct.	2115 to 2195	113.0
15th Oct. to 14th Feb.	2195 to 2175	111.5
15th Feb. to 14th June	2175 to 2115	113.5
		<hr/>
		Total (annual) 3.6 T.M.C.

**20. Proposed disposal of tail-race waters**

The tail-race waters will be utilised partly for irrigation of 6,000 acres during monsoon and for water supply to 6 villages of Sangameshwar taluka of Ratnagiri District

**21. Quantum of river supplies available in relation to withdrawals**

River supply data not available

#### GENERAL

**22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Water supply to 6 villages in Sangameshwar Taluka of Ratnagiri District

**23. to 27.** Not available

**28. Main features and purpose of the scheme**

Generation of power

**29. Special features of the scheme**

Transfer of 3.6 T.M.C. of water outside the Krishna drainage basin

## KHUJGAON PROJECT

260. 3-K.1-M.11

1. Name of State Maharashtra (formerly in Bombay)

2. Scope of the scheme or system

Irrigation scheme ; flow-cum-storage, C.C.A. 158,300 acres

Source of supply

Warna at Khujgaon/Krishna

Upstream utilisation :

existing : nil

proposed : 6.3 T.M.C.

Description of the reservoir or tank

	Khujgaon Storage
Live storage	25.80 T.M.C.
Dead storage	45.00 „
Carry-over	3.20 „
Annual reservoir losses	5.30 „
Filling period	15th June to 30th Sep.
Depletion period	15th June to 14th June
Catchment area	202 square miles
Area submerged	21,000 acres
Full reservoir level	R.L. 1,985
Dead storage level	R.L. 1,950

5. Description of the head works

Dam : masonry, 3,000 feet long, 175 feet high  
Spillway : central, gates, capacity 98,200 cusecs  
Outlets : one in left flank and one in right flank, capacities 1,950 cusecs and 2,000 cusecs respectively

6 Description of the canals

- (i) Khujgaon Right Bank Canal (contour); 95 miles long; perennial ; lined ; authorised capacity 2,000 cusecs
- (ii) Khujgaon Left Bank Canal (contour) ; 38 miles long ; perennial; unlined ; authorised capacity 310 cusecs. The Warna Left Bank Canal (7 C.2-K.1-M.2) will merge into the new Canal

## 7. (a) Nature of investigations carried out up-to-date

Present proposals based largely on topo-sheet studies

## (b) Actual or probable date of beginning of construction

IV Plan

8. Not available

## 9. Gross commanded area and culturable commanded area, district-wise

Names of districts		Total
Right Bank Canal Kolhapur	Left Bank Canal Sangli	
.....thousand acres.....		
G.C.A. 163.0	29.3	192.3
C.C.A. 147.0	26.4	173.4
Deduct area under well irrigation		3.2
Net C.C.A.		170.2
Deduct C.C.A. under Warna Project		11.9
Additional C.C.A.		158.3

## 10. Area proposed to be irrigated annually and intensity of irrigation

Right Bank Canal										Intensity of irrigation	Left Bank Canal*	
Area proposed to be irrigated								Area pro-Intensity posed to be of irri- gated gation				
Zone - A		Zone - B		Zone - C		Total		Alternatives			Alternatives	
Alternatives		Alternatives		Alternatives		Alternatives		Alternatives		Alternatives		
I II		I II		I II		I II		I II		I II		
.....thousand acres..... percentage...thoud acres .. percentage												
Perennial	2.0	3.0	4.6	4.6	3.9	3.9	10.5	10.5	7.1	7.2	1.5	10.8
Long staple cotton	—	—	—	—	55.2	—	55.2	—	37.6	Nil	—	—
Kharif												
Paddy	17.5	17.5	18.7	18.7	—	40.0	36.2	76.2	24.6	51.8	12.3	89.8
Seasonals	—	—	—	—	27.2	—	27.2	—	18.5	Nil	Nil	Nil
Rabi	17.5	17.5	31.9	31.9	2.2	84.6	51.6	57.8	35.1	91.1	12.3	89.8
Hot weather	—	—	—	—	23.6	—	23.6	—	16.1	Nil	—	—
Total	37.0	37.0	55.2	55.2	112.1	128.5	204.3	220.7	139.0	150.1	26.1	190.4

Zone A : C.C.A. with annual rainfall above 50 inches — 20,700 acres

Zone B : C.C.A. with annual rainfall between 50 inches and 30 inches—39,000 acres

Zone C : C.C.A. with annual rainfall below 30 inches — 98,600 acres

\*New area only



12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 20 percent, sandy loam to clayey loam 80 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial		Two seasonal			Kharif					continued below
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops				Total area (T. acres)	
Sugarcane		Cotton	Others		Pad-dy	Jowar	Groundnut	Others		
1.6	2.5	2.3	8.4	17.0	4.1	33.3	17.0	27.7	130.0	

continued from above

Rabi			
Percentage of principal crops		Total area (T. acres)	Total cropped area (T. acres)
Wheat	Jowar		
1.6	4.0	8.8	158.3

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## 15. (a) Proposed pattern of irrigated cultivation

<i>Perennial</i>				<i>Long staple cotton</i>		<i>Kharif</i>			<i>continued below</i>
<i>Percentage of principal crops</i>		<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>		<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>		<i>Total area (T. acres)</i>	
<i>Sugarcane Plantains</i>			<i>Long staple cotton</i>			<i>Paddy</i>	<i>Others</i>		
Right	A I	5.4	2.0	—	—	47.3	—	17.5	
Bank									
Canal	II	5.4	2.0	—	—	47.3	—	17.5	
	B I	8.3	4.6	—	—	33.9	—	18.7	
	II	8.3	4.6	—	—	33.9	—	18.7	
	C I	3.5	3.9	49.2	55.2	—	24.1	27.2	
	II	3.1	3.9	—	—	31.1	—	40.0	
Left	A	5.6	1.5	—	—	47.2	—	12.3	
Bank									
Canal									

		<i>Rabi</i>			<i>Hot weather</i>		<i>Grand Total (T. acres)</i>
		<i>Percentage of principal crops</i>			<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	
		<i>Jowar</i>	<i>Gram</i>	<i>Wheat</i>	<i>Groundnut</i>		
<i>continued from above</i>	Right A I	—	47.3	—	—	—	37.0
	Bank						
	Canal II	—	—	47.3	—	—	37.0
	B I	24.1	33.7	—	—	—	55.2
	II	23.8	—	34.0	—	—	55.2
	C I	1.9	—	—	21.0	23.6	112.1
	II	10.2	—	55.6	—	—	128.5
Left A		—	—	47.2	—	—	26.1
Bank							
Canal							

## (b) Are there any rules for regulating crop pattern ?

No, but sanctions will be regulated to conform to the proposed crop pattern

**16. Duty and Delta at distributory head (as anticipated)**

		<i>Duty</i> (acres per mean cusec)			<i>Delta</i> (feet)			
		<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Total</i>
<b>Sugarcane and</b>								
Plantain	Zone A	400	70	50	0.6	3.5	4.8	8.9
	Zone B	200	70	50	1.2	3.5	4.8	9.5
	Zone C	65	70	50	3.7	3.5	4.8	12.0
<b>Long staple</b>								
cotton.	Zone C	200	400	100	1.2	0.6	2.4	4.2
Paddy	Zone A	400	400	—	0.6	0.6	—	1.2
	Zone B	200	—	—	1.2	—	—	1.2
<i>Kharif</i> (seasonal)	Zone C	200	—	—	1.2	—	—	1.2
<b>All Zones</b>								
<i>Rabi</i> Jowar		—	200	—	—	1.2	—	1.2
Wheat		—	150	—	—	1.6	—	1.6
Gram		—	400	—	—	0.6	—	0.6
Groundnut		—	—	100	—	—	2.4	2.4

		<i>Delta (feet)</i>	
		<i>Right Bank Canal</i>	<i>Left Bank Canal</i>
Alternative I		2.9	2.3
Alternative II		2.6	2.3

Overall delta at canal head

Alternative I 2.8 feet

Alternative II 1.6 „

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

**(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

1,000 wells; irrigating about 2,500 acres of seasonal crops, excluded from the C.C.A.

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**19. to 21. Not applicable****22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

**Extent and type of area submerged by reservoir**

The entire submergence lies in Maharashtra (Culturable 17,500 acres; forests 500 acres and waste lands 3,000 acres)

24. to 26. Not available

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture



सत्यमेव जयते



## GOTHANA PROJECT

27C.3-K.1-M.12

1. Name of State Maharashtra (formerly in Bombay)
2. Scope of the scheme or system  
Multipurpose scheme ; flow cum storage ; lift irrigation of 2,000 acres ; power 25,000 kW. installed
3. Source of supply  
A nalla joining Warna near Gothana/Warna/Krishna  
No utilisation upstream
4. Description of the reservoir or tank

Live storage	2.45 T. M. C.
Dead storage	0.10 „
Carry-over	0.40 „
Annual reservoir losses	0.16 „
Filling period	15 June to 14th Sep.
Depletion period	15 June to 14th June
Catchment area.	8 square miles
Area submerged	768 acres
Full reservoir level	R. L. 2,930
Dead storage level	R. L. 2,810
5. Description of the headworks

Dam :	masonry, 3,500 feet long, 175 feet high
Spillway :	capacity 20,000 cusecs
Outlets :	intake tower, capacity 150 cusecs
6. Description of the canal  
A power channel about half a mile long to feed penstocks, with a surge tank in between
7. (a) Nature of investigations carried out up-to-date  
Preliminary topographical surveys of dam site completed. Other investigations not yet undertaken  
(b) Not available
8. Not available

9. to 18. The tail-race waters will be utilised partly for an annual irrigation of 2,000 acres by lift in Ratnagiri District

#### POWER ASPECTS

19. River supply proposed to be diverted and operation head

	<i>Range of operation head (feet)</i>	<i>Supply passing through turbines (cusecs)</i>
15th. June to 14th. Oct.	2,260 to 2,380	87.2
15th. Oct. to 14th. Feb.	2,380 to 2,350	85.5
15th. Feb. to 14th. June	2,350 to 2,260	87.8
	<b>Total (annual)</b>	<b>2.74 T.M.C.</b>

20. Proposed disposal of tail-race waters

The tail-race waters will be utilised partly for lift irrigation of 2,000 acres of Sangameshwar Taluka, Ratnagiri District, and water supply to Devrukh and 9 other villages.

21. Quantum of river supplies available in relation to withdrawals

River supply data not available

#### GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Water supply to Devrukh town and 9 villages in Sangameshwar Taluka of Ratnagiri District

23. to 27. Not available

28. Main features and pupose of the scheme

Mainly for generation of power

29. Special features of the scheme

Transfer of 2.74 T.M.C. of water outside the Krishna drainage basin

**KADVI PROJECT****28C.3-K.1-M.13****1. Name of State** Maharashtra (formerly in Hyderabad)**2. Scope of the scheme or system**

Multi-purposed scheme; flow-cum-storage; power, 132,000 kW. installed, irrigation, from tail-race waters of about 10,000 acres by lift

**3. Source of supply**

(i) Kadvi at Nivla/Warna/Krishna and (ii) Shali at Tikoli/Kadvi/Warna/Krishna

Utilisation upstream : nil

**4. Description of the reservoir or tank**

	Nivla	Tikoli
Live storage (T.M.C.)	15.60	8.40
Dead storage „	15.00	1.80
Carry-over „	2.10	0.70
Annual reservoir losses (T.M.C.)	3.40	0.60
Filling period	15th June to 14th Sept.	
Depletion period	15th June to 14th June	
Catchment area (square miles)	59	26
Area submerged (acres)	11,000	2,530
Full reservoir level R.L.	1,965	2,040
Dead storage level „	1,925	1,935

**5. Description of the headwork**

Dam	: earthen, 4,500 feet long, 155 feet high	earthen, 4,000 feet long, 210 feet high
Spillway	: masonry, capacity 55,000 cusecs	masonry, capacity 36,000 cusecs
Outlets	: intake tower, capacity 900 cusecs	head regulator, capacity 900 cusecs

**6. Not applicable****7. (a) Nature of investigations carried out up to date**

Flood investigations yet to be undertaken, present proposals based on topo-sheet studies

**(b) Not available****8. Not available****9. to 18. See item 20 below, other particulars not available**

## POWER ASPECTS

## 19. River supply proposed to be diverted and operation head

Period	Range of operation head (feet)		Supply passing through turbines (cusecs) (of both power houses)
	Power House No. 1	Power House No. 2	
15th June to 14th Oct.	1425 to 1463	140	760
15th Oct. to 14th Feb.	1463 to 1450	140	755
15th Feb. to 14th June	1450 to 1425	140	765
Total			23.97 T.M.C.

## 20. Proposed disposal of tail-race waters

The tail race waters from power house No. 1 will pass also through power house No. 2 and then will be utilised in part for lift irrigation of 10,000 acres in Sangameshwar and Ratnagiri talukas of Ratnagiri District

## 21. Quantum of river supplies available in relation to withdrawals

River supply data not available

## GENERAL

## 22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Water supply to Ratnagiri city, villages enroute and to proposed industrial areas near Ratnagiri port

## 23. Extent and type of area submerged by reservoir

The entire submergence lies in Maharashtra (culturable 6,000 acres, hilly lands 7,400 acres)

## 24. to 27. Not available

## 28. Main features and purpose of the scheme

Generation of power

## 29. Special features of the scheme

Transfer of 23.97 T. M. C. of water outside the Krishna drainage basin

**KASARI PROJECT****29.C.3-K.1-M.14**

**1. Name of State** Maharashtra (formerly in Bombay)

**2. Scope of the scheme or system**

Multipurpose scheme ; flow-cum-storage ; power 367,000 kW. installed ; irrigation 4,000 acres

**3. Source of supply**

Kasari at Bazar Bhogaon/Panchganga/Krishna

Utilisation upstream : nil

**4. Description of the reservoir or tank**

Live storage	43.40 T.M.C.
Dead storage	29.00 „
Carry-over	4.40 „
Annual reservoir losses	5.30 „
Filling period	15th June to 14th Sep.
Depletion period	15th June to 14th June
Catchment area	152 square miles
Area submerged	23,000 acres
Full reservoir level	R. L. 1,955
Dead storage level	R. L. 1,900

**5. Description of the headworks**

Dam :	carthen, 5,300 feet long, 184 feet high
Spillway :	masonry, capacity 85,000 cusecs
Outlets :	intake tower, capacity 2,500 cusecs

**6.** Not applicable

**7. (a) Nature of investigations carried out up-to-date**

Field investigations yet to be undertaken

**(b)** Not available

**8.** Not available

**9. to 18.** See item 20 below ; other particulars not available

## POWER ASPECTS

## 19. River supply proposed to be diverted and operation head

<i>Period</i>	<i>Range of operation head (feet)</i>		<i>Supply passing through turbines (cusecs)</i>
	Power House No. 1	Power House No. II	
15th June to 14th Oct.	1,350 to 1,405	240	1,555
15th Oct. to 14th Feb.	1,405 to 1,385	240	1,535
15th Feb to 14th June	1,385 to 1,350	240	1,565
	<b>Total</b>		<b>48.9 T.M.C.</b>

## 20. Proposed disposal of tail-race waters

The tail-race waters from Power House No. 1 will pass through Power House No. 2 and will then be utilised partly for irrigation of 4,000 acres in Rajapur Taluka of Ratnagiri District

## 21. Quantum of river supplies available in relation to withdrawals

River supply data not available.

## GENERAL

## 22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. to 26. Not available

27. Not applicable

## 28. Main features and purpose of the scheme

Generation of power

## 29. Special features of the scheme

Transfer of 48.9 T.M.C. of water outside the Krishna drainage basin

## PHONDA PROJECT

30C.3-K.1-M.15

1. **Name of State** Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**  
Multipurpose scheme ; flow-cum-storage ; irrigation C. C. A. 36,000 acres; power, 70,000 kW. installed
3. **Source of supply**  
Bhogavati at Asne and Radhanagari/Panchaganga/Krishna  
Utilisation upstream : nil
4. **Description of the reservoir or tank**

	<i>Storage on Asne</i>	<i>Storage on Radhanagari</i>
Live storage	5.85 T. M. C	as per
Dead storage	0.30 „	6B-K.1 M.1
Carry-over	0.40 „	
Annual reservoir losses	1.30 „	
Filling period	15th June to 14th Sep.	
Depletion period	15th Sept. to 14th June	
Catchment area	10 square miles	
Area submerged	1,920 acres	
Full reservoir level	R.L. 2,040	
Dead storage level	R.L. 1,928	

### 5. Description of the headworks

- Dam : masonry, 2,200 feet long, 160 feet high  
Spillway : masonry, capacity 19,000 cusecs  
Outlet : river sulice ; capacity 400 cusecs

- (i) intake (head race) tunnel 2 miles long, from Radhanagari storage ; lined ; capacity 400 cusecs up to surge shaft and penstocks leading to Phonda power house.
- (ii) storage cum diversion weir on tail race of Phonda power house ; masonry 1,500 feet long, 35 feet high ; live, capacity 0.4 T.M.C.  
one outlet in either flank. Capacities 550 cusecs and 300 cusecs respectively

### 6. Description of the canals

- (i) Phonda Right Bank Canal (contour) ; 16 miles long ; perennial ; lined ;  
capacity **505 cusecs**
- (ii) Phonda Left Bank Canal (contour) ; 10 miles long ; perennial ; lined ;  
capacity **260 cusecs**

## 7. (a) Nature of investigations carried out up-to-date

Preliminary surveys completed for the power aspect ; irrigation aspect based on topo-sheet studies

(b) Not available

8. Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

District Ratnagiri

	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>	<i>Total</i>
	<i>.....thousand acres.....</i>		
G.C.A.	16.0	31.0	47.0
C.C.A.	12.5	24.0	36.5
Deduct area under well irrigation			0.5
Net G.C.A.			36.0

## 10. Area proposed to be irrigated annually and intensity of irrigation

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation</i>
Perennial	18,000 acres	50.0 percent
Kharif	18,000 "	50.0 "
Rabi	18,000 "	50.0 "
Hot weather	10,000 "	27.8 "
Total	64,000 "	177.8 "

## 11. Normal rainfall and river supply proposed to be diverted (both canals)

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
	<i>.....inches.....</i>			<i>.....T. M. O.....</i>	
June	31.4	44.9	14.7	15th June to 14th Oct.	
July	59.0	86.1	7.5		
August	42.5	74.1	19.9	1.00	0.12
September	13.9	26.6	0.8		
October	10.1	21.5	Nil	15th Oct. to 14th Feb.	
November	0.9	3.9	"	4.60	0.57
December	0.1	0.6	"		
January	Nil	Nil	"		
February	"	"	"	15th February to 14th June	
March	0.1	1.1	"	4.40	0.55
April	0.5	1.7	"		
May	3.1	8.8	"		
Total	161.6			10.00	



12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 30 percent; sandy loam to clayey loam 60 percent and clayey loam to clay 10 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial		Two seasonal		Kharif		
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops		Total area (T. acres)
Sugarcane and Others		Others		Paddy	Others	
1.4	0.5	1.1	0.4	60.2	26.7	31.3

continued below

Rabi		
Percentage of principal crops	Total area (T. acres)	Total cropped area (T. acres)
Others		
10.6	3.8	36.0

continued from above

15. (a) Proposed pattern of irrigated cultivation

Perennial		Kharif		Rabi		Hot weather		Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
Sugarcane plantains etc.		Paddy (Superior)		Wheat		Others		
28.1	18.0	28.1	18.0	28.1	18.0	15.7	10.0	64.0

(b) Are there any rules for regulating crop pattern?

No, but sanctions will be regulated to conform to the proposed crop pattern

16. Duty and Delta at distributory head (as anticipated)

	Duty (acres per mean cusec)			Delta (feet)			
	Kharif	Rabi	Hot weather	Kharif	Rabi	Hot weather	Total
Paddy (superior)	400	400	—	0.6	0.6	—	1.2
Wheat	—	150	—	—	1.6	—	1.6
Sugarcane/Plantains	400	70	50	0.6	3.5	4.8	8.9
Maize/green manure	—	—	200	—	—	1.2	1.2
Overall delta at canal head				3.6 feet			

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

- (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

About 250 wells irrigating about 500 acres of perennial crops, excluded from the C.C.A.

18. Quantum of river supplies available in relation to withdrawals

See item 21 below

#### POWER ASPECTS

19. River supply proposed to be diverted and operation head

Constant head of

1,480 feet

Constant flow of 400 cusecs

Total 12.61 T.M.C.

20. Proposed disposal of tail-race waters

Out of 12.61 T.M.C. let into the tail-race 10.0 T.M.C. will be diverted for irrigation as per details given against item 10

21. Quantum of river supplies available in relation to withdrawals

Project requirements can be met in 6 years out of 7 for which data are available. The adequacy or otherwise of river supply for this project would also be governed by the requirements of an integrated basin-wide plan.

#### GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

The entire submerged lies in Maharashtra

Culturable 1,400 acres; and waste lands 520 acres

24. to 26. Not available

27. Not applicable

28. Main features and purpose of the scheme

Generation of power and conversion of rain-fed cultivation to irrigated agriculture

29. Special features of the scheme

Transfer of 12.61 T.M.C. out side the Krishna drainage basin. Of the river flow at Radhanagari out of which 6.72 T.M.C. is being diverted for generation of power and irrigation lower down under the Radhanagari Project (6B-K.1-M. 1); it is proposed to divert only 4.0 T.M.C. in the Radhanagari power houses. The balance of the river flow at Radhanagari and the storage at Asne will be diverted west-ward for generation of power and irrigation under this project

**KUMBHI PROJECT****31C.3-K.1-M.16**

1. Name of State Maharashtra (formerly in Bombay)

2. Scope of the scheme or system

Multi-purpose scheme; power 290,300 kW. installed, irrigation of 5,000 acres.

3. Source of supply

Kumbhi at Shenwade/Panchganga/Krishna

Dhamni at Patryachiwadi/Kumbhi/ Panchganga/Krishna

No existing utilisation upstream

4. Description of the reservoir or tank

	Dhamni at Patryachiwadi	Kumbhi at Shenwade
Live storage (T.M.C)	16.10	13.60
Dead storage „	9.00	10.00
Carry-over „	2.00	1.70
Annual reservoir losses (T.M.C.)	1.20	1.90
Filling period	.....15th June to 14th September.....	
Depletion period	.....15th June to 14th June.....	
Catchment area (square mile)	58	49
Area submerged (acres)	5,250	7,350
Full reservoir level (R.L.)	2,005	1,972
Dead storage level „	1,935	1,920

5. Description of the headwoks

Dam :	earthen, 4,000 feet long, 200 feet high	earthen, 4,000 feet long, 180 feet high
Spillway :	masonry, non-gated, capacity 53,000 cusecs	masonry, non-gated, capacity 50,000 cusecs
Outlets :	intake tower, capacity 700 cusecs	intake tower, capacity 1,750 cusecs

Water in Patryachiwadi lake will be diverted into Shenwade lake through a tunnel 1½ miles long

6. Not applicable

**7. (a) Nature of investigations carried out up-to-date**

Field investigations not yet undertaken, present proposal based mainly on topo-sheet studies

(b) Not available

8. Not available

9. to 18. See item 20 below, other particulars not available

**POWER ASPECTS****19. River supply proposed to be diverted and operation head**

<i>Period</i>	<i>Range of operation head (feet)</i>		<i>Supply passing through turbines (cusecs)</i>
	<i>Power House No. 1</i>	<i>Power House No. 2</i>	
15th June to 14th Oct.	1420 to 1472	240	1,079
15th Oct. to 14th Feb.	1472 to 1450	240	1,059
15th Feb. to 14th June	1450 to 1420	240	1,089

**Total** **33.91 T.M.C.**

**20. Proposed disposal of tail-race waters**

The tail-race flow from Power House No. 1 will pass also through Power House No. 2 and will then be utilised in part for irrigation of 5,000 acres in Kolhapur and Ratnagiri districts.

**21. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**GENERAL****22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects ; financial returns**

Water supply to 10 villages below Power House No. 2

23. to 27. Not applicable

**28. Main features and purpose of the scheme**

Generation of power

**29. Special features of the scheme**

Transfer of 33.91 T.M.C. of water outside the Krishna drainage basin

## DUDHGANGA PROJECT

32C.3-K.1-M.17

1. **Name of State** Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**  
Multipurpose scheme ; flow-cum-storage ; irrigation, C.C.A. 135,100 acres ; power, installed capacity 13,000 kW. seasonal
3. **Source of supply**  
Dudhaganga at Kalamawadi/Krishna  
Utilisation upstream : nil
4. **Description of the reservoir or tank**

Live storage	20.80 T.M.C.
Dead storage	8.70 „
Carry-over	1.80 „
Annual reservoir losses	2 30 „
Filling period	15th June to 30th Sep.
Depletion period	15th June to 14th June
Catchment area	79 square miles
Area submerged	10,200 acres
Full reservoir level	R.L. 2,115
Minimum pond level	R.L. 2,050
5. **Description of the headworks**

Dam :	earthen, 3,500 feet long, 240 feet high
Spillway :	central masonry, gated capacity 60,800 cusecs
Outlets :	4 number, 7 feet diameter penstock of Power House No. I, capacity 2,000 cusecs head regulator right flank, capacity 180 cusecs
Pick up weir :	masonry, 800 feet long, 66 feet high 3 miles downstream to the dam, capacity 66,600 cusecs
6. **Description of the canals**  
Dudhaganga Right Bank Canal (contour) ; 33 miles long; unlined; authorised capacity  
**175 cusecs**

Dudhganga Left Bank Canal (contour up to miles 46 and then ridge) ; 66 miles long, (branches 37 miles long); perennial; lined; authorised capacity 1,880 cusecs taking off from the tail-race of the Power House No. 1

7. (a) Nature of investigations carried out up-to-date

Preliminary project report ready

(b) Actual or probable date of beginning of construction

IV Plan

Not available

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Kolhapur

	<i>Right Bank Canal</i>	<i>Left Bank Canal excluding Bhogavati Branch</i>	<i>Bhogavati Branch</i>	<i>Total</i>
	.....thousand acres.....			
G. C. A.	13.7	104.0	43.8	161.5
C. C. A.	11.7	88.4	37.2	137.3
Deduct area under well irrigation				2.2
Net C. C. A.				135.1

About 5,000 acres of the C. C. A. on the Left Bank Canal is already irrigated by lift from Radhanagari project 6B-K.1-M. 1

10. Area proposed to be irrigated annually and intensity of irrigation (both canals)

	<i>Area proposed to be irrigated</i>				<i>Intensity of irrigation</i>
	—thousand acres—				—percentage—
	Zone A	Zone B	Zone C	Total	
Perennial	—	14.0	—	14.0	10.3
Two seasonal	—	30.0	—	30.0	22.2
Long staple cotton	—	—	12.0	12.0	8.9
Paddy (superior)	50.0	—	—	50.0	37.0
Khari <sup>t</sup>	—	—	2.0	2.0	1.5
Rabi	50.0	—	—	50.0	37.0
Hot weather	—	30.0	2.0	32.0	23.7
<b>Total</b>	<b>100.0</b>	<b>74.0</b>	<b>16.0</b>	<b>190.0</b>	<b>140.6</b>

**11. Normal rainfall and river supply proposed to be diverted**

Zone A. C. C. A. lying in rainfall zone 50 inches annual and above 60,000 acres

Zone B. C. C. A. lying in rainfall zone between 50 to 30 inches annual 51,200 acres

Zone C. C. C. A. lying in rainfall zone below 30 inches annual 23,900 acres

Month	Rainfall									contd. below
	Zone A			Zone B			Zone C			
	Normal	Max.	Min.	Normal	Max.	Min.	Normal	Max.	Min.	
.....inches.....										
June	15.0	22.3	2.2	4.9	14.6	0.6	3.9	10.4	Nil	
July	30.0	47.4	5.7	12.0	35.9	2.1	4.9	12.7	0.2	
August	20.0	31.4	2.2	7.5	22.1	1.2	4.7	16.1	0.1	
September	7.5	17.8	0.6	5.0	30.8	0.2	5.0	9.9	0.3	
October	5.0	17.5	0.5	4.5	20.3	0.3	4.0	3.5	Nil	
November	1.5	11.8	Nil	1.4	14.9	Nil	1.3	2.3	„	
December	0.2	5.1	„	0.2	4.0	„	0.2	3.5	„	
January	0.1	1.2	„	0.1	2.2	„	1.1	2.0	„	
February	Nil	2.7	„	Nil	0.8	„	0.1	3.9	„	
March	0.3	2.0	„	0.3	3.7	„	0.3	3.9	„	
April	1.1	4.8	„	1.3	6.7	„	1.1	5.8	„	
May	1.8	3.0	„	2.0	4.1	„	1.2	3.4	„	
Total	82.5			39.2			27.8			

continued  
from  
above

River supply proposed to be diverted				Capacity factor
Zone A	Zone B	Zone C	Total	

.....T.M.C.....

15th June to 14th Oct.

1.44    2.72    0.81    4.97    0.22

15th Oct. to 14th Feb.

5.30    3.73    0.35    9.38    0.46

15th Feb. to 14th June

Nil	6.10	1.60	7.70	0.40
<b>6.74</b>	<b>12.55</b>	<b>2.76</b>	<b>22.05</b>	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 20 percent and sandy loam to clay 80 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			Two seasonal			Kharif					
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops					Total area (T. acres)
Sugarcane	Others		Cotton	Others		Paddy	Jowar	Bajri	Groundnut	Others	
8.5	0.9	12.7	5.7	8.0	17.5	19.2	21.7	1.1	16.4	16.6	101.3

continued below

continued from above	Rabi			Total cropped area (T. acres)
	Percentage of principal crops		Total area (T. acres)	
	Wheat	Jowar		
		0.7	1.2	2.6

Mostly under lift irrigation from Radhanagari storage

15. (a) Proposed pattern of irrigated cultivation

	Perennial			Two seasonal		Long staple cotton		continued below		
	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
	Sugarcane	Others		Others			Cotton			
Zone A	—	—	—	—	—	—	—	—		
Zone B	9.5	9.5	14.0	40.5	30.0	—	—	—		
Zone C	—	—	—	—	—	75.0	12.0	—		
Total	3.7	3.7	14.0	15.8	30.0	6.3	12.0	—		

continued from above	Kharif		Rabi		Hot weather			Grand Total (T. acres)	
	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Total area (T. acres)		
	Paddy	Jowar		Wheat					G.nut
Zone A	50.0	—	50.0	50.0	50.0	—	—	—	100.0
Zone B	—	—	—	—	—	40.5	—	30.0	74.0
Zone C	—	12.5	2.0	—	—	12.5	—	2.0	16.0
Total	26.2	1.1	52.0	26.3	50.0	16.9	32.0	32.0	190.0



**16. Duty and Delta at distributory head**

	<i>Duty</i> (acres per mean cusec)			<i>Delta</i> (feet)			
	<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Total</i>
Paddy superior (Zone A)	400	400	—	0.6	0.6	—	1.2
Second crop on Paddy (Zone A) Rabi wheat	—	150	—	—	1.6	—	1.6
Plantains (Zone B)	140	70	50	1.7	3.5	4.8	10.0
Other perennial (Zone B)	200	100	75	1.2	2.4	3.2	6.8
Two seasonal (Zone B)	200	140	—	1.2	1.7	—	2.9
Second crop of Ground nut in H.W. on T.S. (Zone B & C)	—	—	100	—	—	2.4	2.4
Long staple cotton (Zone C)	200	400	100	1.2	0.6	2.4	4.2
Kharif seasonal	200	—	—	1.2	—	—	1.2

Overall delta at canal head 2.6 feet

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom  
5 minor tanks, excluded from the C. C. A.

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated there from

400 wells, irrigating about 12,000 acres of seasonal crops, excluded from the C.C.A.

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**POWER ASPECTS****19. River supply proposed to be diverted and operation head**

	<i>Range of operation head</i>		<i>Supply passing through turbines</i>	
	<i>Power House No. 1</i>	<i>Power House No. 2</i>	<i>Power House No. 1</i>	<i>Power House No. 2</i>
15th June to 14th October	80 to 145	77	470	25.9
15th October to 14th February	145 to 129	92	880	68.0
15th February to 14th June	129 to 80	92	740	54.0
<b>Total</b>			<b>21.97 T.M.C.</b>	<b>1.80 T.M.C.</b>

**20. Proposed disposal of tail-race waters**

The tail-race waters from Power House No. 1 will discharge into Dudhganga L.B.C. part of the supply will be diverted into the river through Power House No. 2 after which it is picked up by the Right Bank Canal.

**21. Quantum of river supplies available in relation to withdrawals**

See item 18 above

**GENERAL****22. Aspects other than irrigation and power ; water supply (month-wise) if any, required for these aspects ; financial returns**

Nil

**23. Extent and type of area submerged by reservoir**

Culturbale	7,500 acres
Forest	2,000 acres
Waste land	700 acres

The entire submergence will be in Maharashtra

**24. to 27.** Not available**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture, increase intensity of cultivation and generation of seasonal power



**VEDGANGA PROJECT****33C.3-K.1-M.18**

- 1. Name of State** Maharashtra (formerly in Bombay)
- 2. Scope of the scheme or system**  
Multi-purpose scheme; flow-cum-storage ; power, 100,000 kW. installed; irrigation of 17,000 acres
- 3. Source of supply**  
Vedganga at Anapwadi/Dudhganga/Krishna  
Utilisation upstream : nil
- 4. Description of the reservoir or tank**

Live storage	14.75 T. M. C.
Dead storage	15.00 "
Carry-over	1.80 "
Annual reservoir losses	2.90 "
Filling period	15th June to 14th Sep.
Depletion period	15th June to 14th June
Catchment area	50 square miles
Area submerged	11,500 acres
Full reservoir level	R. L. 2,044
Dead storage level	R. L. 2,000
- 5. Description of the headworks**

Dam :	earthen, 6,500 feet long , 170 feet high
Spillway :	masonry, gated, capacity 50,000 cusecs
Outlets :	intake tower, capacity 800 cusecs
- 6.** Not applicable
- 7. (a) Nature of investigations carried out up-to-date**  
Present proposal based mainly on topo-sheet studies  
**(b)** Not available
- 8.** Not available
- 9 to 18.** See item 20 below; other particulars not available

## POWER ASPECTS

## 19. River supply proposed to be diverted and operation head

	Range of operation head (feet)		Supply passing through turbines (cusecs)	
	Power House No. 1	Power House No. 2	Power House No. 1	Power House No. 2
15th June to 14th Oct.	1,400 to 1,444	200	482	482
15th Oct. to 14th Feb.	1,444 to 1,420	200	478	478
15th Feb. to 14th June	1,420 to 1,400	200	486	486
<b>Total</b>			<b>15.20 T.M.C.</b>	

## 20. Proposed disposal of tail-race waters

The tail-race waters from Power House No. 1 will flow into Power House No. 2 and will then be diverted partly for irrigation of 17,000 acres in Ratnagiri district

## 21. Quantum of river supplies available in relation to withdrawals

River supply data not available

## GENERAL

## 22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Water supply to 20 villages on the banks of God river in Ratnagiri district

## 23. to 27. Not available

## 28. Main features and purpose of the scheme

Generation of power

## 29. Special features of the scheme

Transfer of 15.20 T.M.C. of water outside the Krishna drainage basin

सत्यमेव जयते

**AJRA PROJECT****34C.8-K.3-M.19**

1. **Name of State** Maharashtra (formerly in Bombay)
2. **Scope of the scheme or system**  
Multi-purpose scheme; flow-cum-storage; power 262,500 kW. installed; irrigation of 8,000 acres
3. **Source of supply**  
Hiranyakeshi/Ghataprabha/Krishna  
Utilisation upstream : nil
4. **Description of the reservoir or tank**

	Ajra Lake
Live storage	26.20 T.M.C.
Dead storage	11.20 „
Carry-over	3.40 „
Annual reservoir losses	2.70 „
Filling period	15th June to 14th Sep.
Depletion period	15th June to 14th June
Catchment area	94 square miles
Area submerged	24,300 acres
Full reservoir level	R.L. 2,267
Dead storage level	R.L. 2,220

**5. Description of the headworks**

- Dam : earthen, 5,500 feet long, 160 feet high with marginal bund 1.75 miles long, 30 feet high
- Spillway : masonry, ogee shaped, capacity 70,000 cusecs
- Outlets : one, capacity 1,600 cusecs

6. Not applicable

**7. (a) Nature of investigations carried out up-to-date**

Present proposal based mainly on topo-sheet studies

(b) Not available

8. Not available

9. to 18. See item 20 below; other particulars not available

## POWER ASPECTS

## 19. River supply proposed to be diverted and operation head

	Range of operation head (feet)		Supply passing through turbines (cusecs)	
	Power House No. I	Power House No. II	Power House No. I	Power House No. II
15th June to 14th Oct.	1,720 to 1,765	240	968	968
15th Oct. to 14th Feb.	1,765 to 1,752	240	962	962
15th Feb. to 14th June	1,752 to 1,720	240	971	971
Total				30.5 T.M.C.

## 20. Proposed disposal of tail-race waters

The tail-race waters from Power House No. I will pass through Power House No. II and will then be utilised partly for irrigation of 8,000 acres in Savantwadi Taluka of Ratnagiri district

## 21. Quantum of river supplies available in relation to withdrawals

According to river data available for 20 years from 1906 to 1926, project requirements available in most years; but the adequacy or otherwise of riversupplies will depend also on the requirements of an integrated basin-wide plan

## GENERAL

## 22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Water supply to 18 villages and Savantwadi Town in Ratnagiri district

## 23. to 27. Not available

## 28. Main features and purpose of the scheme

Generation of power

## 29. Special features of the scheme

Transfer of 30.5 T. M. C. of water outside the Krishna drainage basin

**CHASKAMAN PORJECT****35C.8.K.5-M.20****1. Name of State** Maharashtra (formerly in Bombay)**2. Scope of the scheme or system**

Irrigation scheme; flow-cum-storage; C.C.A. 106,800 acres

**3. Source of supply**

Bhima at Chaskaman/Krishna

Bhima at Pimpalgaon/Krishna

Utilisation upstream :

existing : nil

proposed : about 1.5 T.M.C.

**4. Description of the reservoir or tank**

	Chaskaman storage	Pimpalgaon diversion weir
Live storage (T.M.C.)	10.00	0.29
Dead storage „	1.00	0.14
Carry-over „	1.50	Nil
Annual reservoir losses (T.M.C.)	1.04	Nil
Filling period	15th June to 30th Sep.	Not applicable
Depletion period	15th June to 14th June	Not applicable
Catchment area (square miles)	140	398
Area submerged (acres)	6,400	1,400
Full reservoir level (R.L.)	2,137	1,850
Minimum pond level „	2,050	1,842

**5. Description of the headworks**

<b>Dam :</b>	earthen, 5,000 feet long, 180 feet high	masonry, with earthen flanks, 38 feet high
<b>Spillway :</b>	masonry, gated, capacity 82,900 cusecs	ungated, capacity 138,600 cusecs
<b>Outlets :</b>	one river outlet, capacity 325 cusecs; head regula- tor in left flank, capacity 565 cusecs	head regulator in right flank, capacity 325 cusecs

## 6. Description of the canal

Chaskaman Canal (contour); left bank; 60 miles long; perennial; lined; authorised capacity 565 cusecs

Pimpalgaon Canal (contour); right bank; 30 miles long, perennial; lined; authorised capacity 325 cusecs

## 7. (a) Nature of investigations carried out up-to-date

Field investigations in progress

(b) Not available

8. Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

District	Poona		
	<i>Chaskaman Left Bank Canal</i>	<i>Pimpalgaon Right Bank Canal</i>	<i>Total</i>
	<i>...thousand acres...</i>		
G. C. A.	86.0	50.0	136.0
C. C. A.	68.8	40.0	108.8
Deduct area under wells			2.0
Net C.C.A.			106.8

## 10. Area proposed to be irrigated annually and intensity of irrigation

	<i>Alternative I</i>			<i>Alternative II</i>		
	<i>Area proposed to be irrigated</i>		<i>Intensity of irrigation</i>	<i>Area proposed to be irrigated</i>		<i>Intensity of irrigation</i>
	<i>Chaskaman</i>	<i>Pimpalgaon</i>		<i>Chaskaman</i>	<i>Pimpalgaon</i>	
	<i>...thousand acres</i>	<i>...thousand acres</i>	<i>percentage</i>	<i>...thousand acres...</i>	<i>...thousand acres...</i>	<i>percentage</i>
Perennial	9.6	5.6	14.2	3.6	2.1	5.3
Two seasonal	Nil	Nil	Nil	2.2	1.3	3.3
<i>Kharif</i> (seasonal)	3.9	2.3	5.8	24.3	13.7	35.6
Long staple cotton	10.6	6.2	22.0	13.2	7.8	19.7
<i>Rabi</i>	22.6	13.1	33.4	29.5	17.3	43.8
Hot weather	1.5	0.8	2.2	Nil	Nil	Nil
Total	48.2	28.0	71.3	72.8	42.2	107.7



## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall						continued below
	Chaskaman Canal			Pimpalgaon Canal			
	Normal	Maximum	Minimum	Normal	Maximum	Minimum	
..... inches .....							
June	4.5	13.4	Nil	4.0	14.5	Nil	
July	5.3	14.0	0.4	3.6	10.4	0.2	
August	3.3	16.5	0.3	2.5	11.8	0.3	
September	4.5	23.2	0.1	4.0	14.2	0.1	
October	2.7	21.0	Nil	3.0	40.0	Nil	
November	1.3	12.1	„	1.3	10.2	„	
December	0.2	2.5	„	0.2	1.9	„	
January	0.1	1.4	„	0.1	1.5	„	
February	0.1	6.8	„	0.1	0.5	„	
March	0.1	1.6	„	0.1	1.1	„	
April	0.5	3.9	„	0.5	5.4	„	
May	1.1	5.5	„	1.0	5.4	„	
Total	23.7			20.4			

continued from above	River supply proposed to be diverted				Capacity factor			
	Chaskaman Canal		Pimpalgaon Canal		Chaskaman Canal		Pimpalgaon Canal	
	Alternative	Alter- native	Alternative	Alter- native	Alternative	Alter- native	Alternative	Alter- native
	I	II	I	II	I	II	I	II

.....T.M.C.....

15th June to 14th Oct.

2.79	2.82	1.63	1.60	0.47	0.47	0.48	0.47
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15th Oct. to 14th Feb.

*2.41	2.91	*1.36	1.71	0.40	0.49	0.39	0.50
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15th Feb. to 14th June

*2.68	2.15	*1.56	1.25	0.46	0.37	0.46	0.37
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<b>Total</b>	<b>7.88</b>	<b>7.88</b>	<b>4.55</b>	<b>4.56</b>
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	Alternative I	Alternative II
Annual diversion by Chaskaman Canal	<b>7.88</b>	<b>7.88</b>
Annual diversion by Pimpalgaon Canal	<b>4.55</b>	<b>4.56</b>

Total annual diversion by both canals	<b>12.43 T.M.C.</b>	<b>12.44 T.M.C.</b>
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\*Note : Canal water will not be supplied from 15th October to 14th April to 80 percent of the area under perennial, which will be irrigated in that period from wells

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to, sandy loam 40 percent, sandy loam to clayey loam 30 percent and clayey loam to clay 30 percent

Depth of soil more than 18 inches in 60 percent of the area and between 9 inches and 18 inches in the rest

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			Two seasonal			Kharif					Total area (T. acres)	conti- nued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops						
Sugar- cane	Others		Cotton	Others		Paddy	Jowar	Bajri	Ground- nut	Others		
Chaskaman canal												
0.1	0.2	0.2	0.3	2.0	1.6	2.0	3.5	26.5	6.5	8.0	32.0	
Pimpalgaon canal												
1.0	0.5	0.6	0.5	2.0	1.0	1.5	—	17.8	0.7	5.8	10.8	

conti- nued from above	Rabi				Hot weather				Total cropped area (T. acres)
	Percentage of principal crops			Total area (T. acres)	Percentage of principal crops		Total area (T. acres)		
	Wheat	Jowar	Others		Fodder				
Chaskaman canal									
	1.9	40.0	9.0	35.0	—	—	68.8		
Pimpalgaon canal									
	1.1	53.9	7.0	24.8	8.2	3.3	40.0		

## 15. (a) Proposed pattern of irrigated cultivation

Perennial			Two seasonal			Kharif		continued below	
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops			Total area (T. acres)
Sugarcane	Others		Cotton			Cereal			
Chaskaman Canal	Alternative I								
15.0	4.9	9.6	22.0	10.6	8.1	3.9			
Chaskaman Canal	Alternative II								
3.3	1.6	3.6	3.0	2.2	33.4	24.3			
Pimpalgaon Canal	Alternative I								
15.0	5.0	5.6	22.1	6.2	8.2	2.3			
Pimpalgaon Canal	Alternative II								
2.7	2.3	2.1	3.4	1.3	32.4	13.7			

continued from above	Long staple cotton		Rabi			Hot weather		Grand Total (T. acres)
	Percentage of principal crops		Percentage of principal crops		Percentage of principal crops			
	Total area (T.acres)	Cotton	Wheat   Jowar		Total area (T.acres)	Others		
Chaskaman Canal	Alternative I							
—	Nil	3.8	43.0	22.6	3.1	1.5	48.2	
Chaskaman Canal	Alternative II							
18.1	13.2	24.2	16.4	29.5	Nil	Nil	72.8	
Pimpalgaon Canal	Alternative I							
—	Nil	3.8	43.0	13.1	2.9	0.8	28.0	
Pimpalgaon Canal	Alternative II							
18.5	7.8	26.7	14.3	17.3	Nil	Nil	42.2	

## (b) Are there any rules for regulating crop pattern?

No ; but sanctions will be regulated to conform to the proposed crop pattern

## 16. Duty and Delta at distributory head (as anticipated)

	Duty (acres per mean cusec)		
	Kharif	Rabi	Hot weather
Plantain/sugarcane	65	70	50
Other perennial	100	100	75
Two seasonal	130	140	Nil
Kharif seasonal	200	Nil	"
Long staple cotton	200	400	100
Rabi (wheat)	Nil	150	Nil
(jowar)	"	200	"
Hot weather seasonal	"	Nil	100

Overall delta at canal head (feet)		
Alternative I	Alternative II	
Chaskaman Canal	3.8	2.5
Pimpalgaon Canal	3.7	2.5

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

- (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

1,485 wells, irrigating about 2,000 acres of seasonal crops. The area under wells is excluded from the C.C.A.

18. Quantum of river supplies available in relation to withdrawals

River supplies are likely to be adequate for project requirements, but this adequacy will also be governed by the requirements of an integrated basin-wide plan

19. to 21. Not applicable

#### GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. to 26. Not available

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture



**BHIMA LIFT IRRIGATION PROJECT  
STAGE II**

**36 C.2-K.5-M.21**

**1. Name of State** Maharashtra (formerly in Bombay)

**2. Scope of the scheme or system**

Lift irrigation scheme ; additional C.C.A. 223,800 acres; source of power : Koyna

**3. Source of supply**

Pavna river at Phagne (same as per 8C.2-K.5-M.3)/Mula/Mula-Mutha/Bhima/Krishna

Indrayani at Sangavi/Bhima/Krishna

Bhama river at Askheda/Bhima/Krishna

Bhima at Pargaon/Krishna

Bhima at Ujjani/Krishna (same as per 8C.2-K.5-M.3)

Utilisation upstream : considerable

**4. Description of the reservoir or tank**

Same as per Stage I (8C.2-K.5-M.3) and in addition the following :

		Sangavi dam on Indrayani	Askheda dam on Bhama	Pargaon weir on Bhima
Live storage	(T.M.C)	7.00	6.85	0.50
Dead storage	"	0.70	0.60	0.50
Carry-over	"	1.1	1.0	Nil
Annual reservoir losses	"	1.25	1.15	—
Filling period		..... 15th June to end of Sep.....		
Depletion period		..... 15th June to 14th June .....		
Catchment area (square miles)		230	94	2,370
Area submerged (acres)		6,600	2,900	1,800
Full reservoir level (R.L)		1,990	2,191	1,700
Minimum pond level	"	1,955	2,080	1,690

**5. Description of the headworks**

**A. Additional storages**

Dam

:

Sangavi Dam

earthen, 4,000 feet long  
and 107 feet high

Askheda Dam

masonry, 5,000 feet long  
and 180 feet high

Spillway	:	Submerged spillway in the saddle	
		capacity 105,200 cusecs	capacity 47,600 cusecs
River sluices	:	capacity 1,400 cusecs	capacity 300 cusecs
Head regulator	:	—	left flank, capacity 150 cusecs

**B. Storage-cum-pick-up-weir at**

1. Pargaon submerged ogee shaped gated weir, 68 feet high, with non-overflow earthen side flanks, capacity, 340,000 cusecs and pumping sets on right bank.
2. Ujjani same as per **8C.2-K.5-M.3**

**6. Description of the canals**

Askheda Canal (contour) ; left bank ; 10 miles long ; two seasonal ; unlined ; authorised capacity **100 cusecs**

Pargaon Lift Canal (contour) ; right bank ; 40 miles long ; perennial ; lined ; authorised capacity **280 cusecs**

Re-modelling and lining Ujjani canal and extension to mile 140 to carry **2,500 cusecs**

**7. (a) Nature of investigations carried out up-to-date**

Project report under preparation

**(b) Actual or probable date of beginning of construction**

IV Plan

**8. Not available**

**IRRIGATION ASPECTS**

**9. Gross commanded area and culturable commanded area, district-wise**

	<i>Askheda canal Poona</i>	<i>Pargaon canal Poona</i>	<i>Ujjani canal Sholapur</i>	<i>Total</i>
.....thousand acres.....				
G. C. A.	30.0	70.0	352.4	452.4
C. C. A.	24.0	50.0	315.0	389.0
Deduct C.C.A. under Stage I(8C 2-K.5-M.3)				142.4
				246.6
Deduct area under Ashti tank and wells				22.8
				223.8
				Additional C.C.A.

## 10. Area proposed to be irrigated annually and intensity of irrigation

Season	Ashkeda canal		Pargaon canal		Ujjani canal		Total	
	Area in T. acres	Percentage	Area in T. acres	Percentage	Area in T. acres	Percentage	Area in T. acres	Percentage
1	2	3	4	5	6	7	8	9
Perennial	—	—	3.1	6.3	29.0	9.2	32.1	8.3
Two seasonal	9.0	37.5	—	—	—	—	9.0	2.3
Long staple cotton	—	—	3.1	6.3	29.0	9.2	32.1	8.3
Khariif	—	—	12.5	25.3	116.0	36.9	128.5	33.1
Rabi	—	—	14.6	29.5	135.7	43.1	150.3	38.7
<b>Total</b>	9.0	37.5	33.3	67.4	309.7	98.4	352.0	90.7

Deduct area irrigated as per 8C. 2-K. 5-M.3

100.0

Additional irrigation

252.0

## 11. Normal rainfall and river supply proposed to be diverted

Ashkeda canal

Month	Rainfall			River supply proposed to be diverted	Capacit, factor
	Normal	Maximum	Minimum		
	..... inches .....			.....T. M. C.....	
June	4.7	15.9	0.1	15th June to 14th Oct.	
July	6.8	17.6	0.5	0.74	0.70
August	4.3	13.8	0.8		
September	5.5	18.1	0.2		
October	2.8	9.4	0.1	15th Oct. to 14th Feb.	
November	1.2	13.9	Nil	0.70	0.66
December	0.1	3.2	„		
January	0.1	1.4	„		
February	0.1	1.1	„	15th Feb. to 14th June	
March	0.1	2.2	„	Nil	—
April	0.4	2.5	„		
May	1.0	5.3	„		
Total	27.1			1.44 T.M.C.	

## Pargaon canal

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			..... T.M.C.....	
June	3.1	8.0	0.2	15th June to 14th Oct.	
July	2.6	9.6	0.1	1.45	0.40
August	2.0	7.9	0.1		
September	5.5	16.1	Nil		
October	2.9	13.0	,,	15th Oct. to 14th Feb.	
November	1.1	9.0	,,	1.45	0.40
December	0.3	3.0	,,		
January	0.1	2.0	,,		
February	0.1	1.3	,,	15th Feb. to 14th June	
March	0.1	0.8	,,	1.08	0.30
April	0.4	2.4	,,		
May	0.8	5.7	,,		
<b>Total</b>	<b>18.0</b>			<b>3.98</b>	

## Ujjani canal

June	3.8	11.5	0.6	15th June to 14th Oct.	
July	3.5	8.3	0.2	13.40	0.51
August	3.5	20.9	0.2		
September	6.5	21.2	0.2		
October	3.0	11.2	Nil	15th Oct. to 14th Feb.	
November	1.1	8.6	,,	13.46	0.51
December	0.3	3.9	,,		
January	0.2	1.7	,,		
February	0.1	2.2	,,	15th Feb. to 14th June	
March	0.2	1.9	,,	9.98	0.38
April	0.5	4.5	,,		
May	0.8	3.4	,,		
<b>Total</b>	<b>28.5</b>			<b>86.84 T.M.C.</b>	

Total diversion by three canals

42.26 ,,

Deduct diversion proposed under 8C.2-K.5-M.3

15.40 ,,

Additional diversion

26.86 ,,

12.

Not available



## 13. (a) Characteristics of soils in the commanded area

	Askheda canal	Pargaon canal	Ujjani canal
	percentage.....		
Sandy to sandy loam	40	35	30
Sandy loam to clayey loam	30	40	50
Clayey loam to clay	30	25	20

(h) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

## 14. Existing pattern of cultivation in the area proposed to be irrigated

	Perennial		Two seasonal		Kharif							continued below
	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops						Total area (T. acres)	
					Pad-dy	Jowar	Bajri	Pulses	G. nut	Others		
Askheda canal	—	—	3.8	0.9	6.6	6.5	24.4	5.1	6.6	5.0	13.0	
Pargaon canal	0.8	0.4	1.8	0.9	0.2	—	8.8	6.0	0.4	—	7.7	
Ujjani canal	0.3	1.0	2.5	7.9	0.6	—	4.0	5.3	6.2	0.5	52.4	
Total		1.4		9.7							73.1	

continued from above	Rabi				Hot weather		Total cropped area (T. acres)
	Percentage of principal crops			Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
	Wheat	Jowar	Gram		Others		
	2.1	10.9	7.0	4.8	22.1	5.3	24.0
	1.1	77.6	2.3	40.5	1.0	0.5	50.0
	1.9	70.4	6.8	249.3	1.4	4.4	315.0
<b>Total</b>				<b>294.6</b>		<b>10.2</b>	<b>389.0</b>

## 15. (a) Proposed pattern of irrigated cultivation

	Perennial		Two seasonal		Long staple cotton		continued below
	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
	Sugarcane		Others		Long staple cotton		
Askheda canal	—	—	100.0	9.0	—	—	
Pargaon canal	9.3	3.1	—	—	9.3	3.1	
Ujjani canal	9.4	29.0	—	—	9.4	29.0	
<b>Total</b>		<b>32.1</b>		<b>9.0</b>		<b>32.1</b>	

continued from above

	Kharif		Rabi		Grand Total (T. acres)
	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
	Seasonal		Jowar		
Askheda canal	—	—	—	—	9.0
Pargaon canal	37.5	12.5	43.8	14.6	33.3
Ujjani canal	37.5	116.0	43.8	135.7	309.7
<b>Total</b>		<b>128.5</b>		<b>150.3</b>	<b>352.0</b>

## (b) Are there any rules for regulating crop pattern?

No ; but sanctions will be regulated to conform to the proposed crop pattern

## 16. Duty and Delta at distributory head (as anticipated)

	Duty (acres per mean cusec)			Delta (feet)			
	Kharif	Rabi	Hot weather	Kharif	Rabi	Hot weather	Total
Sugarcane	65	70	50	3.7	3.5	4.8	12.0
Two seasonal	130	140	—	1.9	1.7	—	3.6
Long staple cotton	200	400	100	1.2	0.6	2.4	4.2
Kharif	200	—	—	1.2	—	—	1.2
Rabi	—	200	—	—	1.2	—	1.2

Askheda canal | Pargaon canal | Ujjani canal

Overall delta at canal head (feet)

3.7

2.7

2.7

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Ashti tank 0.8 T.M.C. irrigating about 4,700 acres annually refer 17A-K. 5-M. 10 excluded from the C.C.A.

- (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

5,200 wells irrigating about 6,000 acres of seasonal crops, excluded from the C.C.A.

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

#### GENERAL

22. Aspects other than irrigation and power ; water supply (month wise), if any, required for these aspects ; financial returns

Water supply (0.50 T.M.C. from Phagne dam on Pavna river for Pimpri industrial area)

23. Extent and type of area submerged by reservoir

Entire submergence in Maharashtra (cultivable 20,100 acres, waste lands 9,400 acres)

24. Total cost of the scheme 13,00 lakh rupees (inclusive of cost of Stage I)

25. Not available

26. Cost per acre irrigated Rs. 370

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture.



**VELHOLI HYDEL SCHEME****37C.3-K.5-M.22**

- 1. Name of State** Maharashtra (formerly in Bombay)
- 2. Scope of the scheme or system**  
Hydro-electric scheme ; flow-cum storage ; power, 30,000 kW. installed
- 3. Source of supply**  
Kundali at Velholi/Indrayani/Bhima/Krishna  
Utilisation upstream  
existing : Hydro-electric scheme ex-Shivawata lake about 2.30 T. M. C.
- 4. Description of the reservoir or tank**

Live storage	5.00 T.M.C.
Dead storage	0.50 „
Carry-over	0.60 „
Annual reservoir losses	0.52 „
Filling period	June to Sept.
Depletion period	June to May
Catchment area	41 square miles
Area submerged	3,300 acres
Full reservoir level	R. L. 2,090
Dead storage level	R. L. 2,030
- 5. Description of the headworks**

Dam	:	masonry, 4,500 feet long and 110 feet high
Spillway	:	open channel waste weir, capacity 44,600 cusecs
Outlets	:	head regulator in right flank, capacity 150 cusecs
- 6. Description of the canal**  
Velholi Power Canal (contour) ; 6 miles long ; perennial ; lined ; authorised capacity 150 cusecs
- 7. (a) Nature of investigations carried out up-to-date**  
Present proposal based mainly on topo-sheet studies  
**(b) Actual or probable date of beginning of construction** IV Plan
- 8.** Not available
- 9. to 18.** Not applicable

**POWER ASPECTS****19. River supply proposed to be diverted and operation head**

Range of operation head	Supply passing through turbines
1,500 feet (constant)	150 cusecs (constant)
<b>Total annual 4.7 T.M.C.</b>	

**20. Proposed disposal of tail-race waters**

The tail-race waters are proposed to be utilised for water supply to industrial areas of greater Bombay City and near Khopoli and Chowk Towns of Kolaba district

**21. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**GENERAL****22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects; financial returns**

Water supply to the industrial area of Bombay

23. to 25. Not available

26. Not applicable

27. Not available

**28. Main features and purposed of the scheme**

Power generation

**29. Special features of the scheme**

Transfer of 4.7 T.M.C. of water outside the Krishna drainage basin



1. Name of State Maharashtra (formerly in Bombay)

2. Scope of the scheme or system

Irrigation scheme; flow-cum-storage; additional C. C. A. 143,300 acres

3. Source of supply

Mutha/Mula-Mutha/Bhima/Krishna

4. Description of the reservoir or tank

Enlarging the scope of Storage I (5C. 1-K. 5-M.2) to the following particulars

	Panset	Warasgaon
Live storage (T.M.C.)	11.00	13.00
Dead storage „	0.30	0.20
Carry-over „	1.50	1.40
Annual reservoir losses (T.M.C.)	0.60	0.60
Filling period	..... June to Sep. ....	
Depletion period	..... June to May .....	
Catchment area (square miles)	47	51
Area submerged (acres)	3,950	4,000
Full reservoir level (R.L.)	2,089	2,097
Minimum pond level „	1,950	1,950

5. Description of the head works

	Panset	Warasgaon
Dam :	earthen, 3,500 feet long, 193 feet high	earthen, 3,400 feet long, 204 feet high
Spillway :	gated, capacity 48,000 cusecs	gated, capacity 50,000 cusecs
Outlets :	an R.C.C. arch conduit in each dam with control tower and two gates of 8 feet × 5 feet (one gate as a standby)	

6. Description of the canals

Lining the Mutha Canal upto mile 101 so as to raise the authorised capacity from 1,050 cusecs to 2,050 cusecs in the head reach, and extension of the Canal to mile 165

7. (a) Nature of investigations carried out up-to-date

Project report ready; Stage I in progress. A revised Project Report being submitted

## (b) Actual or probable date of beginning of construction

Subsequent to completion of Stage I

8. Probable date of beginning of operation 1966-67

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

District Poona

G. C. A.	366,000 acres
C. C. A.	274,500 „
Deduct irrigation under wells and tanks	16,000 „
Further deduct C.C.A. under Stage I	115,200 „
Additional C.C.A.	143,300 „

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	Intensity of irrigation
Perennial	30,400 acres	11.8 percent
Two seasonal	26,000 „	10.1 „
Kharif	24,400 „	9.4 „
Rabi	84,400 „	32.6 „
Hot weather	8,800 „	3.4 „
<b>Total</b>	<b>174,000 „</b>	<b>67.3 „</b>

Deducting area irrigated under Stage I, additional irrigation  
would be 85,600 acres

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	inches			T.M.C.	
June	3.3	7.1	1.4	2.00	0.38
July	4.4	7.3	1.2	1.45	0.26
August	3.2	9.9	0.7	4.09	0.74
September	4.8	10.2	0.6	4.87	0.92
October	3.5	7.9	0.3	3.90	0.71
November	0.4	3.2	Nil	3.72	0.70
December	0.2	2.1	„	2.99	0.54
January	0.2	1.8	„	3.01	0.55
February	Nil	0.1	„	1.19	0.24
March	0.1	0.4	„	1.09	0.20
April	0.4	1.1	„	1.92	0.36
May	0.8	2.2	„	1.82	0.33
<b>Total</b>	<b>21.3</b>			<b>32.05</b>	
Add for Poona water supply				<b>4.00</b>	
				<b>36.05</b>	
Deduct diversion proposed under Stage I				<b>22.04</b>	
Additional diversion				<b>14.01</b>	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 35 percent ; sandy loam to clayey loam 40 percent and clayey loam to clay 25 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			Two seasonal			Kharif				continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops			Total area (T. acres)	
Sugar- cane	Others		Cotton	Others		Paddy	Bajri	Others		
3.2	0.2	9.3	0.8	2.8	9.9	0.4	10.1	7.7	50.0	

continued from above	Kabi			Total area (T. acres)	Hot weather		Total cropped area (T. acres)
	Percentage of principal crops				Percentage of principal crops	Total area (T. acres)	
	Wheat	Jouar	Others	Fodder			
	1.2	64.3	7.6	200.6	1.7	4.7	274.5

15. (a) Proposed pattern of irrigated cultivation

Perennial			Two seasonal		Kharif		continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
Sugarcane	Others		Cotton		Others		
15.0	2.5	30.4	15.0	26.0	14.0	24.4	

continued from above	Kabi		Hot weather		Grand Total (T. acres)
	Percentage of principal crops	Total area (T.acres)	Percentage of principal crops	Total area (T.acres)	
	Others		Fodder		
	48.5	84.4	5.1	8.8	174.0

(b) Are there any rules for regulating crop pattern ?

No, but sanctions will be regulated to conform to the proposed crop pattern



# 16. Duty and Delta at distributory head (as anticipated)

	Duty (acres per mean cusec)			Delta (feet)			
	Khariif	Rabi	Hot weather	Khariif	Rabi	Hot weather	Total
Sugarcane	65	70	50	3.7	3.5	4.8	11.0
Other perennial	100	100	75	2.4	2.4	3.2	8.0
Long staple cotton	200	200	300	1.2	1.2	0.8	3.2
Khariif	200	—	—	1.2	—	—	1.2
Rabi	—	200	—	—	1.2	—	1.2
Hot weather	—	—	100	—	—	2.4	2.4
Overall delta at canal head				4.2 feet			

# 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Five tanks irrigating about 4,600 acres, excluded from the C.C.A.

# (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

About 5,700 wells, each capable of irrigating about 2 acres (well irrigation about 11,400 acres), excluded from the C.C.A.

# 18. Quantum of river supplies available in relation to withdrawals

Except in very low years, there is enough water in the river to meet the requirements of both canals, the average (15 years) surplus would be about 150 T.M.C. The adequacy or otherwise of river supplies for this project would, however, also be governed by the requirements of an integrated basin-wide plan.

# 19. to 21. Not applicable

## GENERAL

# 22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Water supply to Poona City

# 23. Extent and type of area submerged by reservoir

	Panset	Warasgaon	Total
	.....acres.....		
Culturable	1,450	1,400	2,850
Waste	2,500	2,600	5,100
Total	3,950	4,000	7,950

Entire submergence in Maharashtra

- 24. Total cost of the scheme** Rs. 16,34 lakhs (inclusive of water supply)
- 25.** Not available
- 26. Cost per acre irrigated** Rs. 800
- 27:** Not applicable
- 28. Main features and purpose of the scheme**  
Conversion of rain-fed cultivation to irrigated agriculture



सत्यमेव जयते

1. Name of State Maharashtra (formerly in Bombay)
2. Scope of the scheme or system  
Mult-purpose ; water supply and power ; flow-cum-storage ; water supply to Poona City and Cantonment, Power generation 13,500 kW. installed
3. Source of supply  
Mutha/Mula-Mutha/Bhima/Krishna
4. Description of the reservoir or tank  
Reservoir under construction at (a) Panset on Ambi River  
(b) Warasgaon on Mose River see 5C.1-K.5-M.2  
Proposed reservoir : on Mutha at Bahuli upstream of Khadakwasla  
Bahuli  

Live storage	6.50 T.M.C.
Dead storage	0.30 „
Carry-over	4.50 „
Annual reservoir losses	0.40 „
Filling period	June to Sep.
Depletion period	June to May
Catchment area	29 square miles
Area submerged	1,380 acres
Full reservoir level	R.L. 2,153
Dead storage level	R.L. 1,975
5. Description of the headworks  
Dam : earthen, 4,200 feet long, 190 feet high  
Spillway : particulars not available  
Outlets : capacity 200 cusecs
6. Not applicable
7. (a) Nature of investigations carried out up-to-date  
Preliminary investigations in progress  
(b) Actual or probable date of beginning of construction IV Plan
8. Not available

9. to 18. Not applicable

# POWER ASPECTS

## 19. River supply proposed to be diverted and operation head

Month	Range of operation head (feet)		Supply passing through turbines (cusecs)	
	Panshet	Warasgaon	Panshet	Warasgaon
June	86 feet	96 feet		
July	to	to	312	364
August	158 feet	167 feet		
September				
October	131 feet	142 feet		
November	to	to	270	310
December	158 feet	167 feet		
January				
February	86 feet	96 feet		
March	to	to	350	400
April	131 feet	142 feet		
May				
Total			9.82 T.M.C.	11.29 T.M.C.

## 20. Proposed disposal of tail-race waters

The tail-race waters will be picked up at Khadakwasla dam for use in irrigation and water supply

## 21. Quantum of river supplies available in relation to withdrawals

Sufficient supplies are available in the river at this point to meet the requirements of the project

## GENERAL

## 22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Under project No. 5C.1-K. 5-M.2 a provision for water supply of 4.0 T.M.C. for Poona City has been made. A further supply of 3.45 T.M.C. is proposed to be made available by this project

## 23. Extent and type of area submerged by reservoir

Culturable 500 acres; waste and forest 880 acres.

## 24 to 27. Not available

## 28. Main features and purpose of the scheme

Water supply to Poona City, generation of power.

**KUKDI PROJECT**

40.C.3-K.5-M.25

**Stage II****1. Name of state** Maharashtra (formerly in Bombay)**2. Scope of the scheme or system**

Multipurpose scheme-cum-storage; irrigation, additional C.C.A. 455,900 acres; power, 14,470 kw. installed

**3. Source of supply**

- (i) Ghod at Pimpalgaon/Bhima/Krishna
- (ii) Ghod at Chinchani/Bhima/Krishna
- (iii) Mina at Wadgaon/Ghod/Bhima/Krishna
- (iv) Ar at Bhoirwadi Pushpavati/Kukdi/Ghod/Bhima/Krishna
- (v) Kukdi at Manikdoh/Bhima/Krishna
- (vi) Kukdi at Kandli/Ghod/Bhima/Krishna

Utilisation upstream : Negligible

**4. Description of the reservoir or tank**

Storage on Ghod at Chinchani same as per 7B-K.5-M.2

Storage on Ar at Bhoirwadi, on Mina at Wadgaon and the diversion dam at Kandli on Kukdi—same as per 16C.2-K.5-M.6

	Manikdoh on Kukdi	Pimpalgaon on Ghod
Live storage (T.M.C.)	10.10	19.00
Dead storage „	1.10	4.00
Carryover „	4.40	7.40
Annual reservoir losses (T.M.C.)	1.00	1.60
Filling period	15th June to end of Sep.	
Depletion period	15th June to 14th June	
Catchment area (square miles)	50	144
Area submerged (acres)	4,460	7,600
Full reservoir level R.L.	2,290	2,310
Dead storage level R.L.	2,200	2,230

### 5. Description of the headworks

Storage on Ghod at Chinchani same as per 7B-K. 5-M.2

Storage on Ar at Bhoirwadi and on Mina at Wadgaon and the diversion dam at Kandli on Kukdi same as per 16C.2-K.5-M.6

	Mahikdoh on Kukdi	Pimpalgaon on Godh
Dam	: earthen, 2,720 feet long 210 feet high	earthen, 4,600 feet long, 200 feet high
Spillway	: Ogee, gated capacity 47,500 cusecs	Ogee, [gated, capacity 60,000 cusecs
Outlets	: river outlet capacity 350 cusecs	head regulator left flank, capacity 600 cusecs

### 6. Description of the canals

Pimpalgaon Canal (contour); left bank; 19 miles long; joining the Mina Link Canal; lined; perennial; authorised capacity 600 cusecs

Mina link canal, same as per 16G.2-K.5-M.6

Remodelling and extending Kandli canal to 130 miles (contour); left bank; lined perennial; and raising its capacity to 2,288 cusecs

Pushpawati Canal (contour); right bank; 3 miles long; unlined; perennial; authorised capacity 16 cusecs

(an existing minor scheme) will receive part storage of Ar.

Pushpawati Left Canal (contour); 4 miles long; perennial; authorised capacity 20 cusecs

(an existing minor scheme) will receive a part of the storage of Ar.

### 7. (a) Nature of investigations carried out up-to-date

Preliminary investigation completed; project report under preparation

### (b) Actual or probable date of beginning of construction

IV Plan

### 8. Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area, Culturable commanded area and Ayacut, district-wise

Item	Pimpalgaon Canal	Kukdi Canal				Pushpawati Canal	Total
	Poona	Poona	Ahmad-nagar	Sholapur	Total		
	.....thousand acres.....						
G. C. A.	118.0	33.0	520.0	100.0	653.0	8.0	779.0
C. C. A.	77.0	27.4	415.0	80.0	522.4	7.0	606.4
Deduct area under tank and wells	5.0	—	—	—	10.8	—	15.8
	72.0				511.6		590.6
	Deduct area under Pushpawati Bandhara						5.0
	Deduct area under Stage I						129.7
	Additional C. C. A.						455.9

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated				Intensity of irrigation		
	Pushpawati Canal	Pimpalgaon Canal	Kukdi Canal	Total	Pushpawati Canal	Pimpalgaon Canal	Kukdi Canal
	.....thousand acres.....				.....percentage.....		
Perennials	0.5	5.4	25.0	30.9	6.43	7.5	4.9
Long staple cotton	0.9	10.8	50.0	61.70	12.86	15.0	9.8
Kharif	0.5	6.7	31.0	38.2	8.00	9.3	6.1
Normal Rabi	1.5	17.2	80.0	98.7	21.29	23.9	15.6
Advance Rabi	1.0	12.3	56.5	69.8	14.29	17.2	11.0
Hot weather	0.2	1.6	7.5	9.3	2.14	2.2	1.5
Total	4.6	54.0	250.0	308.6	64.1	75.0	49.0
Deduct area under Pushpawati Bandhara	1.2						
Deduct area under Stage I	122.8						
Additional irrigation	184.6						

**11. Normal rainfall and river supply proposed to be diverted**  
**Pushpawati Canal**

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			.....T.M.C.....	
June	4.4	19.1	0.4	15th June to 14th Oct.	0.58
July	3.0	29.5	1.3	0.22	
August	3.3	17.8	1.4		
September	5.0	17.2	0.1		0.50
October	2.7	13.6	0.1	15th Oct. to 14th Feb.	
November	1.1	13.5	Nil	0.19	
December	0.2	1.5	„		0.50
January	0.2	1.7	„		
February	0.1	1.9	„	15th Feb. to 14th June	
March	0.1	2.1	„	0.19	
April	0.4	3.4	„		
May	1.0	7.3	„		
Total	21.5			0.60	

**Pimpalgaon Canal**

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			.....T.M.C.....	
June	4.5	10.8	0.4	15th June to 14 Oct.	0.40
July	3.0	10.5	Nil	2.50	
August	3.5	8.3	0.1		
September	5.1	16.7	0.1		0.35
October	2.7	13.4	Nil	15th Oct. to 14th Feb.	
November	1.2	7.4	,,	2.24	
December	0.3	4.6	,,		0.35
January	0.1	1.9	,,		
February	0.1	1.6	,,	15th Feb. to 14th June	
March	0.1	1.4	,,	2.16	
April	0.4	4.1	,,		
May	0.9	9.1	,,		
Total	21.9			6.90	



## Kukdi Canal

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			.....T.M.C. ....	
June	4.0	10.9	0.1	15th June to 14th Oct.	0.48
July	2.9	9.6	0.3	11.60	
August	2.8	10.9	0.2		
September	5.8	13.9	Nil		
October	2.7	9.4	"	15th October to 14th Feb.	0.43
November	1.1	9.9	"		
December	0.2	4.3	"	10.40	
January	0.2	2.5	"		
February	0.1	0.7	"	15th Feb. to 14 June	0.42
March	0.1	1.8	"		
April	0.4	8.0	"		
May	0.8	4.5	"	10.00	
<b>Total</b>	<b>21.1</b>			<b>32.0</b>	
Total diversion by all Canals				<b>39.5</b>	T.M.C.
Deduct diversion under stage I				<b>17.40</b>	"
Additional diversion				<b>22.10</b>	"

12. to 13 Not available

## 14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			Two seasonal				Kharif							continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops						Total area (T. acres)		
Sugar-cane	Others		Cotton	Others		Paddy	Jow-ar	Baj-ra	Pulses	Ground nut	Others			
Pimpalgaon Canal														
0.5	0.4	0.7	0.2	2.2	1.7	2.4	2.3	31.2	6.5	3.5	1.5	36.5		
Pushpawati Canal														
1.5	1.4	0.2	—	2.9	0.2	5.4	3.0	43.5	5.0	1.0	2.1	4.2		
Kukdi Canal														
0.3	—	1.6	0.8	1.2	10.7	0.4	0.1	13.4	10.6	1.1	0.3	135.2		

continued from above	Rabi					Other crops			Total cropped area (T. acres)
	Percentage of principal crops				Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
	Wheat	Jowar	Gram	Others		Fodder	Gram		
	3.2	31.6	2.8	4.6	32.5	1.4	5.9	5.6	77.0
	5.9	18.7	2.9	1.1	2.0	3.4	2.3	0.4	7.0
	1.9	58.2	1.5	7.5	361.0	0.2	2.5	14.0	522.4

## 15. (a) Proposed pattern of irrigated cultivation

	Perennial			Two seasonal		Kharif		continued below
	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Percentage of principal crops		
	Sugarcane & plantain	Others		Cotton Long Staple	Total area (T. acres)	Ground-nut	Jowar	
Pimpalgaon Canal	8.0	2.0	5.4	20.0	10.8	12.4	0.7	
Pushpawati Canal	8.0	2.0	0.5	19.6	0.9	12.2	0.6	
Kukdi Canal	8.0	2.0	25.0	20.0	50.0	12.4	31.0	

continued from above	Rabi			Hot whether		Grand Total (T. acres)	
	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops			Total area (T. acres)
	Wheat	Jowar					
	5.0	49.6	29.5	3.0	1.6	54.0	
	5.0	49.3	2.5	4.3	0.2	4.5	
	5.0	49.6	136.5	3.0	7.5	250.0	
						308.6	

## (b) Are there any rules for regulating crop pattern ?

No; but sanctions will be regulated to conform to the proposed crop pattern

## 16. Duty and Delta at canal head (as anticipated)

	Duty (acres per mean cusec)			Delta (feet)		
	Kharif	Rabi	Hot weather	Kharif	Rabi	Hot weather
Pimpalgaon Canal	145	145	86	1.6	1.6	2.8
Pushpawati Canal	129	210	83	1.9	1.1	3.0
Kukdi Canal	147	211	60	1.6	1.1	4.0

Overall delta at canal head 2.9 feet

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Four tanks and one bandhara, irrigating about 8,800 acres, excluded from the C.C.A.

## (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

3,500 wells, capable of irrigating about 7,000 acres of seasonal crops. The area under wells is excluded from the C.C.A.

**18. Quantum of river supplies available in relation to withdrawals**

The average river supplies available exceed utilisation proposed but there will be some years in which river supplies will be below requirements. The adequacy or otherwise of river supplies will also be governed by the requirements of a basin-wide plan.

**POWER ASPECTS****19. River supply proposed to be diverted and operation head**

	<i>Period</i>	<i>Range of operation head (feet)</i>	<i>Supply passing through turbines (cusecs)</i>	<i>T.M.C.</i>
Manikodh storage on Kukdi	June to May	60 feet to 140 feet average 103 feet	336 (average)	10.60
Pimpalgaon canal at head	Aug. to Apr.	30 feet to 60 feet average 40 feet	600 (average)	14.15
Pimpalgaon canal tail reach	June to May	Constant head of 145 feet	530 (constant)	16.71

**20. Proposed disposal of tail race waters**

The tail race waters are proposed to be utilised for irrigation on Kukdi and Pimpalgaon Canals

**21. Quantum of river supplies available in relation to withdrawals**

As per item 18 above

**GENERAL****22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects; financial returns**

0.3 T.M.C. for water supply to Junnar Town

**23. Extent and type of area submerged by the reservoir**

	Bhoirwadi on Ar	Manikdoh on Kukdi	Pimpalgaon on Ghod	Wadgaon on Mina	Kandli on Kukdi
Area submerged in acres					
Culturable	1,250	500	2,600	1,600	170
Forest	—	2,500	2,000	—	—
Waste	550	1,460	3,000	700	80
<b>Total</b>	<b>1,800</b>	<b>4,460</b>	<b>7,600</b>	<b>2,300</b>	<b>250</b>

Entire submergence lies in Maharashtra

**24 to 27. Not available****28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture and generation of power.

## NIRA VALLEY PROJECT

410.3-K.5-M.26

**1. Name of State**

Maharashtra (formerly in Bombay)

**2. Scope of the scheme or system**

Multipurpose; flow-cum-storage; irrigation, additional; C.C.A. Nil; power 15,000 kW.  
installed

**3. Source of supply**

Nira at Vir/Bhima/Krishna

**4. Description of the reservoir or tank**

Existing storages at (i) Bhatghar (see 15A-K.5-M.8) and (ii) Vir (see 6C-1-K.5-M.3)  
(iii) Nira at Natambi  
(iv) Gunjwani at Mohari

Live storage	(T.M.C.)	12.5	12.8
Dead storage	"	1.25	1.3
Carry over*	"	2.2	2.1
Annual reservoir losses (T.M.C.)		1.25	1.3
Filling period		15th June to 30th September	
Depletion period		15th June to 14th June	
Catchment area (sq. miles)		86	183
Area submerged (acres)		5,440	7,300
Full reservoir level R.L.		2,104	2,128
Minimum pond level R.L.		2,007	2,041

*\*In the integrated scheme, the entire storage at Vir (9.4 T.M.C.) will be operated as a carry-over storage.*

**5. Description of the head works**

Dam	: earthen, 5,000 feet long, 164 feet high	earthen, 5,000 feet long 178 feet high
Spillway	: left flank, ungated capacity 65,000 cusecs	left flank, gated capacity 94,800 cusecs
Outlets	: capacity 3,500 cusecs	capacity 3,500 cuses

## 6. Description of the canals

Remodelling and extension of Nira Right Bank Canal to the following particulars :

180 miles long (contour); lined, perennial; authorised capacity; Alternative I **3,070 cusecs**  
or Alternative II **3,400 cusecs**

## 7. (a) Nature of investigations carried out up-to-date

Detailed investigations in progress

## (b) Actual or probable date of beginning of construction

IV Plan

## 8. Not available

## 9. Gross commanded area, Culturable commanded area district-wise

Same as per 15A-K.5-M.8 (Nira Canal)

## 10. Area proposed to be irrigated annually and intensity of irrigation

Alternative I				Alternative II				
Area proposed to be irrigated		Intensity of irrigation		Area proposed to be irrigated		Intensity of irrigation		
Nira Right Bank Canal	Nira Left Bank Canal	Nira Right Bank Canal	Nira Left Bank Canal	Nira Right Bank Canal	Nira Left Bank Canal	Nira Right Bank Canal	Nira Left Bank Canal	
..thousand acres.....	percentage.....	..thousand acres.....	percentage.....	..thousand acres.....	percentage.....	..thousand acres.....	percentage.....	
Perennial	64.3	8.2	14.4	5.5	36.6	4.7	8.2	3.1
Two seasonal	55.1	7.0	12.3	4.7	Nil	Nil	Nil	Nil
Long staple cotton	Nil	Nil	Nil	Nil	81.5	10.2	18.2	6.8
Kharif	51.4	6.5	11.5	4.3	125.6	15.7	28.1	10.5
Rabi	178.3	22.5	39.8	15.0	191.8	24.0	20.5	16.0
Hot weather	18.4	2.3	4.1	1.5	12.2	1.5	2.7	1.0
Total	367.5	46.5	82.1	31.0	447.7	56.1	77.7	37.4
Total for both canals		414,000 acres		503,800 acres				
Deduct present irrigation under Nira Canals (15A-K.5-M.8)		153,100 „		153,100 „				
Deduct proposed irrigation under Vir Dam Project (6C.1-K.5-M.3)		101,000 „		101,000 „				
Additional irrigation		159,900 „		249,700 „				

**11. Normal rainfall and river supply proposed to be diverted**

Month	Rainfall		River supply proposed to be diverted				Capacity factor			
	Nira Right Bank Canal	Nira Left Bank Canal	Nira Right Bank Canal Alternative I	Nira Right Bank Canal Alternative II	Nira Left Bank Canal Alternative I	Nira Left Bank Canal Alternative II	Nira Right Bank Canal Alternative I	Nira Right Bank Canal Alternative II	Nira Left Bank Canal Alternative I	Nira Left Bank Canal Alternative II
	.....T.M.C.....									
June	Same as per Nira Canal		15th June to 14th Oct.							
July	(15A-K.5-M.8)		21.10	20.6	2.45	2.7	0.65	0.57	0.32	0.36
August										
September										
October	15th Oct. to 14th Feb.									
November			17.40	19.2*	2.04*	2.5*	0.53	0.53	0.27	0.33
December										
January										
February	15th Feb. to 14th June									
March			18.60*	16.5*	2.15*	2.2*	0.58	0.47	0.29	0.29
April										
May										

<b>Total</b>	<b>57.10</b>	<b>56.3</b>	<b>6.64</b>	<b>7.4</b>
Annual at diversion	Alternative I		Alternative II	
Nira Right Bank Canal	57.10		56.30	
Nira Left Bank Canal	6.64		7.40	
Total by both Canals	63.74		63.70	
Deduct existing diversion under Nira Canals (15A-K.5-M.8)	32.29		32.29	
Deduct proposed diversion under Vir dam (6C.1-K.5-M.3)	14.38		14.38	
Additional diversion	17.07 T.M.C.		17.03	

\*Canal water will not be given to 80 per cent of the area under perennials from 15th October to 14th April; supplies from wells will be utilised for irrigation instead.

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy loam 63 percent; silty loam to clayey loam 28 percent and clayey loam to clay 9 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the areas proposed to be irrigated (as under Nira canals without Vir Dam)

Perennial			Two seasonal			Kharif					continued below
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops				Total area (T. acres)	
Sugarcane	Others		Cotton	Others		Paddy	Bajara	Groundnut	Others		
Nira Right Bank Canal											
3.8	0.2	20.7	1.6	0.2	9.2	0.3	13.6	2.7	4.9	110.3	
Nira Left Bank Canal											
15.8	0.2	10.6	2.3	6.9	6.1	1.7	13.5	—	6.3	14.3	

continued from above	Percentage of principal crops			Total area (T. acres)	Hot weather		Total cropped area (T. acres)
					Percentage of principal crops	Total area (T. acres)	
	Wheat	Jowar	Others		Seasonal		
	1.8	66.1	5.3	372.6	—	—	512.8
	1.6	51.0	—	35.0	0.8	0.5	66.5

15. (a) Proposed pattern of irrigated cultivation

	Perennial			Two seasonal		Kharif		conti- nued below
	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Percentage of principal crops Groundnut and Jowar	Total area (T. acre)	
	Sugarcane or Plantains	Others		Cotton	Total area (T. acres)			
Nira Right Bank Canal Alternative I	15.0	2.5	64.5	15.0	55.1	14.0	51.4	
Alternative II	6.2	2.0	36.6	Nil	Nil	28.1	125.6	
Nira Left Bank Canal Alternative I	15.0	2.6	8.2	15.1	7.0	14.0	6.5	
Alternative II	7.0	2.0	4.7	Nil	Nil	28.1	15.7	

Continued from above	Long staple Cotton		Rabi				Hot weather		Grand Total (T. acres)
	Percentage	Total area (T. acres)	Percentage of principal crops			Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
			Wheat	Jowar	Others		Fodder		
	Nil	Nil	5.0	40.0	3.5	178.3	5.0	18.4	367.5
	18.2	81.5	9.0	33.8	—	191.8	2.7	12.2	447.7
	Nil	Nil	5.0	40.0	3.4	22.5	4.9	2.3	46.5
	18.2	10.2	9.0	33.8	—	24.7	2.7	1.5	56.1

## (b) Are there any rules for regulating crop pattern ?

No, but sanctions will be regulated to conform to the proposed crop pattern

**16. Duty and Delta at distributary head (as anticipated)**

(1) Canal water is not supplied from 15th October to 14th April to 80 percent of the area under perennials; accordingly the rabi duty for this area will be in-operative and hot weather duty will be 100 and 150 for sugarcane and other perennials respectively.

	<i>Duty</i> (acres per mean cusec)			<i>Delta</i> (feet)			<i>Total</i>
	<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	<i>Kharif</i>	<i>Rabi</i>	<i>Hot weather</i>	
Sugarcane	65	70	50	3.75	0.7	2.88	7.33
Other Perennials	100	100	75	2.44	0.49	1.92	4.85
Long Staple Cotton	200	200	100	1.22	1.23	2.3	4.75
Two seasonal	130	140	—	1.88	1.75	—	3.63
<i>Kharif</i> Seasonal	200	—	—	1.22	—	—	1.22
<i>Rabi</i> Jowar	—	200	—	—	1.23	—	1.23
<i>Rabi</i> Wheat	—	150	—	—	1.64	—	1.64
Hot weather seasonals	—	—	100	—	—	2.4	2.4

Overall delta at Canal head

Nira Left Bank Canal

Nira Right Bank Canal

Alternative I 3.3 feet

3.6 feet

Alternative II 3.0 „

2.9 „

**17. (a) Number of tanks in operation in the area proposed to be irrigated with the area irrigated from these tanks in the last five years**

Three tanks, irrigating about 7,500 acres of seasonal crops; area under these tanks is excluded from the C.C.A.

**(b) Number of wells in operation in the area proposed to be irrigated**

Nira Right Bank Canal 2,950 wells

Nira Left Bank Canal 990 „

The area under wells will be supplied canal water and is therefore not excluded from the C.C.A.

**18. Quantum of river supplies available at site of diversion in relation to utilisation**

Supplies are available for the project in 16 years out of 18 for which data are available but the adequacy or otherwise of available supplies would also be governed by the requirements of an integrated basin wide plan



**19. River supply proposed to be utilised and operation head**

<i>Month</i>	<i>Range of operation constant head feet</i>	<i>Supply passing through turbines (cusecs)</i>
June		2,241
July		2,241
August		2,241
September		2,241
October		1,839
November	58	1,839
December		1,839
January		1,839
February		2,000
March		2,000
April		2,000
May		2,000
<b>Total</b>		<b>63.9 T.M.C.</b>

The figures above are for Alternative I, those for Alternative II are not materially different.

**20. Proposed disposal of tail-race waters**

The tail-race flow will be fully utilised for irrigation

**21. Quantum of river supplies available at site of diversion in relation to utilisation**

Same as item 18 above

**22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. Extent and type of area submerged by reservoir**

	<i>Natambi</i>	<i>Mohori</i>
	<i>.....acres.....</i>	
Culturable	2,750	3,820
Forest	1,856	2,370
Waste lands	834	1,110
<b>Total</b>	<b>5,440</b>	<b>7,300</b>

**24. to 27. Not available****28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture and generation of power

## NIMGAON GANGURDE TANK

42C.3-K.5-M.27

1. Name of State Maharashtra (formerly in Bombay)

2. Scope of the scheme or system

Irrigation; flow-com-storage, C.C.A. 26,600 acres

3. Source of supply

Sina near Nimgaon (Gangurde) Bhima/Krishna

Utilisation upstream ; minor tanks only

4. Description of the dam and reservoir or tank

Live storage	1.50 T.M.C.
Dead storage	0.15 „
Carry-over	Nil
Annual reservoir losses	0.19 T.M.C.
Filling period	15th June to 30th Sep.
Depletion period	15th June to 14th Feb.
Catchment area	525 square miles
Area submerged	2,300 acres
Full reservoir level	R.L. 1,922
Minimum pond level	R.L. 1,900

5. Description of the headworks

Dam :	masonry with earthen flanks, 8,000 feet long, 55 feet high
Spillway :	masonry, 3,500 feet long, capacity 160,000 cusecs
Outlets :	one, capacity 150 cusecs

6. Description of the canals

Nimgaon Canal (contour); right bank; 30 miles long; unlined; two seasonal; authorized capacity 136 cusecs

7. (a) Nature of investigations carried out up-to-date

Present proposal based mainly on topo-sheet studies

(b) Not available

8. Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

District Ahmadnagar

G. C. A.	38,000 acres
C. C. A.	27,000 „
Deduct area under wells	400 „
Net C.C.A.	<b>26,600 „</b>

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	Intensity of irrigation
Two seasonal	5,700 acre	21.4 percent
<i>Kharif</i>	4,800 „	18.0 „
<i>Rabi</i>	8,500 „	32.0 „
<b>Total</b>	<b>19,000 „</b>	<b>71.14</b>

## 11. Normal rainfall and river supply proposed to be diverted .

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			.....T. M. C.....	
June	4.6	12.7	0.1	15th June to 14th Oct.	0.50
July	3.4	11.2	0.2	0.72	
August	2.9	12.1	0.1		
September	6.6	15.9	0.4		0.69
October	2.9	8.2	0.2	15th Oct. to 14th Feb.	
November	1.1	10.7	Nil	0.99	
December	0.2	1.8	„		—
January	0.2	2.7	„		
February	—	0.6	„	15th Feb. to 14th June	
March	0.1	0.8	„	Nil	
April	0.5	7.7	„		
May	0.8	4.9	„		
Total	23.3			1.71	

## 12. Not available

## 13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 35 percent sandy loam to clayey loam 35 percent and clayey loam to clay 30 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

**14. Existing pattern of cultivation in the areas proposed to be irrigated**

Two seasonal			Kharif			Total area (T. acres)	Rabi		Total cropped area (T. acres)	
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops				Percentage of principal crops			
Cotton	Others		Bajra	Pulses	Others		Wheat	Jowar		
1.1	2.4	1.0	7.0	9.5	1.0	4.8	2.0	77.0	21.2	27.0

**15. Proposed pattern of irrigated cultivation**

Two seasonal			Kharif		Rabi			Grand Total (T. acres)
Percentage of principal crops		Total area (T. acres	Percentage of principal crops	Total acres (T. acres)	Percentage of principal crops		Total areas (T.acres)	
Cotton	Others		Others		Wheat	Jowar		
5.0	25.0	5.7	25.0	4.8	5.0	40.0	8.5	19.0

(b) Are there any rules for regulating crop pattern ?

No, but sanctions will be regulated to conform to the proposed crop pattern

**16. Duty and Delta at distributary head (as anticipated)**

	Duty (acres per mean cusec)		Delta (feet)		
	Kharif	Rabi	Kharif	Rabi	Total
Kharif	200	—	1.2	—	1.2
Rabi	—	200	—	1.2	1.2
Wheat	—	150	—	1.7	1.7
Two seasonal	130	140	1.9	1.7	3.6
Overall delta at canal head					2.1 feet

**17. (a) Number of tanks in operation in the area proposed to be irrigated with the area irrigated from these tanks during the last five years**

Nil

(b) Number of wells in operation in the area proposed to be irrigated

190 wells, each capable of irrigating about 2 acres of seasonal crops, i.e. 380 acres. The area under wells is excluded from the C.C.A.

- 18. Quantum of river supplies available in relation to withdrawals**

**Irrigation requirements can be found in most years**

- 19. to 21.** Not available

## GENERAL

22. Aspects other than irrigation and power; water supply (month-wise) if any required for these aspects; financial returns

Nil

23. to 26. Not applicable

27. Not applicable

- ## 28. Main features and purpose of the scheme

### Conversion of rain-fed cultivation to irrigated agriculture



## SINA PROJECT

43C.3-K.5-M. 28

1. Name of State Maharashtra (formerly in Hyderabad)

2. Scope of the scheme or system

Irrigation scheme; flow-cum-storage; C.C.A. 69,600 acres

3. Source of supply

Sina near Kolegaon/Bhima/Krishna

Considerable upstream utilisation both existing and proposed

4. Description of the reservoir or tank

Live storage	3.00 T. M. C.
Dead storage	0.30 „
Carry-over	Nil
Annual reservoir losses	0.45 T. M. C.
Filling period	15th June to 30th Sep.
Depletion period	15th June to 14th Feb.
Catchment area	2,012 square miles
Area submerged	7,800 acres
Full reservoir level	R. L. 1,674
Minimum pond level	R. L. 1,650

5. Description of the headworks

Dam :	masonry with earthen flanks; 800 feet long, 54 feet high
Spillway :	central, ungated, capacity 314,000 cusecs
Outlets :	head regulator in both flanks, capacities 100 cusecs and 260 cusecs respectively

6. Description of the canals

Kolegaon Right Bank Canal (contour); 20 miles long ; unlined; to seasonal; authorised capacity 100 cusecs

Kolegaon Left Bank Canal (contour); 41 miles long; unlined two seasonal; authorised capacity 260 cusecs

7. (a) Nature of investigations carried out up-to-date

Present proposal based mainly on topo-sheet studies

(b) Actual or probable date of beginning of construction

Not available

8. Not available

## IRRIGATION ASPECTS

## 9. Gross commanded area and culturable commanded area, district-wise

	Names of districts		Total	Grand Total
	Osmanabad	Sholapur		
	.....thousand acres.....			
Right Bank Canal G. C. A.		25.0	25.0	
Left Bank Canal G. C. A.	43.0	22.0	65.0	90.0
Right Bank Canal C. C. A.		18.8	18.8	
Left Bank Canal C. C. A.	34.5	17.5	52.0	70.8
Deduct area under wells				1.2
Total				69.6

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated		Intensity of irrigation	
<i>Kharif</i>	18,000	acres	26.0	percent
<i>Rabi</i>	15,800	"	22.8	"
Two seasonals	11,200	"	16.1	"
Total	45,000	"	64.9	

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	2	3	4	5	6
	.....inches.....			.....T.M.C.....	
June	3.9	12.5	0.4	15th June to 14th Oct.	
July	3.8	13.8	0.1	2.05	0.55
August	3.6	11.0	0.1		
September	6.9	18.8	0.5		
October	3.0	9.9	Nil	15th Oct. to 14th Feb.	
November	1.0	6.7	"	1.85	0.48
December	0.2	3.0	"		
January	0.2	1.8	"	15th Feb. to 14th June	
February	0.1	1.3	"	Nil	
March	0.2	1.0	"		
April	0.4	2.4	"		
May	0.8	7.8	"		
Total	24.1			3.90	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 35 percent

loam to clayey loam 35 percent

loam to clay 30 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

	Perennial			Kharif					continued below
	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops				Total area (T. acres)	
	Cotton	Others		Paddy	Bajra	Groundnut	Pulses & Others		
Right Bank Canal	3.0	1.8	0.9	2.0	7.3	3.0	10.0	4.2	
Left Bank Canal	2.0	5.7	4.0	3.1	1.5	5.0	13.5	12.0	

continued from above	Rabi				Total cropped area (T. acres)
	Percentage of principal crops			Total area (T. acres)	
	Jowar	Wheat	Pulses & Others		
	3.0	67.4	2.5	13.7	18.8
	4.5	60.2	4.5	36.6	52.0

15. (a) Proposed pattern of irrigated cultivation

Two seasonal		Kharif		Rabi		Total area (T. acres)	Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)		
Chillies & Cotton etc.		Jowar and groundnut		Jowar			
25.0	11.2	40.0	18.0	35.0	15.8	45.0	

(b) Are there any rules for regulating crop pattern ?

No, but sanction will be regulated to conform to the proposed crop pattern

16. Duty and Delta at distributary head (as anticipated)

	Duty (acres per mean cusec)		Delta (feet)		Total delta in feet
	Kharif	Rabi	Kharif	Rabi	
Kharif	200	—	1.2	—	1.2
Rabi	—	200	—	1.2	1.2
Two seasonal	130	140	1.9	1.8	3.7
Overall delta at canal head 2.0 feet					



- 17. (a) Number of tanks in operation in the area proposed to be irrigated with the area irrigated from these tanks during the last five years**

Nil

- (b) Number of wells in operation in the area proposed to be irrigated**

600 wells; each capable of irrigating about 2 acres of seasonal crops; the area under wells excluded from the C.C.A.

- 18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

- 19. to 21. Not applicable**

#### GENERAL

- 22. Aspects other than irrigation and power ; water supply (month-wise), if and, required for these aspects, financial returns**

Nil

- 23. to 26. Not available**

- 27. Not applicable**

- 28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture



## BIJAPUR LIFT IRRIGATION SCHEME

44C. 3-K.2-My.1

1. Name of State Mysore (formerly in Bombay)
2. Scope of the scheme or system  
Irrigation scheme ; flow-cum-storage, ayacut 850,000 acres; lift upto 250 feet - power required for lifting water to be obtained from proposed Kali-Nadi hydro electric project about 156 miles away
3. Source of supply  
Krishna at Bidri; considerable uses upstream, both existing and proposed
4. Description of the reservoir or tank  
Storage at Bidri; other particulars not available
5. Description of the head works  
Water will be lifted by stages to R. L. 1,975; other particulars not available
6. Description of the canals  
Krishna East Canal (contour); 65 miles long; perennial ; lined ; authorised capacity 5,855 cusecs  
Krishna West Canal (contour) ; 80 miles long ; perennial; lined ; authorised capacity 1,116 cusecs.
7. (a) Nature of investigations carried out up-to-date  
Present proposals based on topo-sheet studies; field investigations have yet to be undertaken.  
(b) Actual or probable date of beginning of construction IV Plan
8. Probable date of beginning of operation  
4th year from beginning of construction

## IRRIGATION ASPECTS

## 9. Gross commanded area, Culturable commanded area and Ayacut, district-wise

(both canals)

Item	Name of district		Total
	Belgaum	Bijapur	
	.....thousand acres.....		
G.C.A.	190.00	1,230.00	1,420.00
C.C.A.	135.50	927.00	1,062.50
Ayacut	114.00	736.00	850.00

## 10. Area proposed to be irrigated annually and intensity of irrigation (both canals)

	Area irrigated annually	Intensity of irrigation on Ayacut
Perennials	85,000 acres	10.0 percent
Kharif	553,000 „	65.0 „
Rabi	212,000 „	25.0 „
Total	850,000 „	100.0 „

## 11. Normal rainfall and river supply proposed to be diverted

(i) West Canal

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			...T.M.C.	
June	3.0	5.9	0.4	1.45	0.50
July	3.0	4.6	0.7	2.99	1.00
August	3.0	8.7	0.6	2.99	1.00
September	5.1	8.7	0.8	2.89	1.00
October	4.0	13.4	Nil	2.44	0.82
November	1.3	4.0	„	1.91	0.66
December	0.2	1.1	„	1.24	0.41
January	0.1	1.1	„	1.24	0.41
February	0.2	0.3	„	1.12	0.41
March	0.2	0.6	„	0.49	0.16
April	1.1	2.1	„	0.24	0.08
May	1.7	5.5	0.4	0.24	0.08
Total	22.9			19.24	

## (ii) East Canal

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			T:M.C.	
June	3.2	4.8	1.3	7.59	0.50
July	2.9	6.4	0.9	15.68	1.00
August	3.2	6.8	0.8	15.68	1.00
September	6.3	10.3	1.7	15.18	1.00
October	3.6	8.9	0.7	12.85	0.82
November	1.3	3.1	Nil	10.03	0.66
December	0.3	1.1	„	6.54	0.42
January	0.1	0.5	„	6.54	0.42
February	0.1	0.6	„	5.90	0.42
March	0.3	0.8	„	2.55	0.16
April	0.8	1.2	0.1	1.23	0.08
May	1.1	3.7	0.3	1.23	0.08
Total	23.2			101.00	
Total diversion by both Canals				120.24	

12. Not available

13. (a) Characteristics of soils in the commanded area

Medium and deep black soils derived from trap rock

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif				Rabi					Total cropped area (T. acres)
Percentage of principal crops			Total area (T. acres)	Percentage of Principal crops				Total area (T. acres)	
Jowar	Groundnut	Bajra		Jowar	Cotton	Wheat	Pulses		
20.0	12.0	13.0	382.5	22.0	14.0	6.0	13.0	467.5	850.0

15. (a) Proposed pattern of irrigated cultivation

Perennial		Kharif				Rabi			Total area (T. acres)	Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops			Total area (T. acres)	Percentage of principal crops				
Sugar cane		Paddy	Jowar	Oilseeds etc.		Jowar	Cotton	Wheat		
10.0	85.0	22.0	43.0	etc.	553.0	15.0	5.0	5.0	212	850.0

## (b) Are there any rules for regulating crop pattern

Legislation under consideration

**16. Duty and Delta at distributary head (as anticipated)**

<i>Duty</i> (acres per mean cusec)				<i>Delta</i> (feet)				
<i>Perennial</i>	<i>Kharif</i>		<i>Rabi</i>	<i>Perennial</i>	<i>Kharif</i>		<i>Rabi</i>	<i>Overall</i>
	<i>Paddy</i>	<i>Others</i>			<i>Paddy</i>	<i>Others</i>		
75	55	150	120	8.9	5.5	1.8	2.0	3.2

**17.** Not available**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**19. to 21.** Not applicable**GENERAL****22. Aspects other than irrigation and power; water supply (month-wise). If any, required for these aspects; financial returns**

Nil

**23. to 26.** Not available**27.** Not applicable**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture



1. **Name of State** Mysore (formerly in Hyderabad)
2. **Scope of the scheme or system**  
Irrigation scheme: flow-cum-storage; additional ayacut 667,000 acres
3. **Source of supply**  
Krishna at (i) Alamatti; (ii) Narayanpur (40 miles downstream)/Krishna plus 25 T.M.C. anticipated from Koyna storage. considerable upstream use both existing and proposed.
4. **Description of the reservoir or tank**  
Same as under 11C.2-K.2-My.2. Particulars of additional storage capacity to be Provided, not available.
5. **Description of the headwork**  
Same as under 11C.2-K.2-My. 2.
6. **Description of the canals**  
Stage II (additions on stage I)
  - (i) Alamatti Left Bank Canal extension of branches; lining of canal and increase in authorised capacity from 1,700 to 3,900 cusecs
  - (ii) Alamatti Right Bank Canal (contour); 90 miles long perennial; lined; authorised capacity 1,000 cusecs
  - iii) Narayanpur Right Bank Canal (contour); about 61 miles long; perennial; lined; authorised capacity 2600 cusecs
7. (a) **Nature of investigations carried out up to date**  
Surveys in progress  
(b) **Actual or probable date of beginning of construction**  
IV plan
8. **Not available**

## IRRIGATION ASPECTS

## 9. Gross commanded, area culturable commanded area, and Ayacut, district wise

Item District	Alamatti L.B Canal		Total	Alamatti R. B. Canal			continued below
	Gulbarga	Bijapur		Bijapur	Raichur	Total	
G.C.A.	320.0	359.0	679.0	21.0	163.0	184.0	
C.C.A.	255.0	323.0	579.0	19.0	131.0	150.0	
Ayacut	192.0	250.2	442.2	14.8	98.0	112.8	
Deduct ayacut as per stage I	30.0	158.0	188.0	—	—	—	
Additional Ayacut	162.0	92.2	254.2	14.8	98.0	112.8	

continued from above	Narayanpur R.B. Canal Raichur	Narayanpur L.B. Canal Gulbarga	Grand Total
	500.0	575.0	1,988.0
	400.0	460.0	1,589.0
	300.0	345.0	1,200.0
	—	345.0	533.0
	300.0	—	667.0

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated		Intensity of irrigation	
Perennials	84,000	acres	7.0	percent
Two seasonal	60,000	„	5.0	„
Kharif	516,000	„	43.0	„
Rabi	540,000	„	45.0	„
Total	1,200,000	„	100.0	„

Deduct irrigation under stage I

533,000 acres

Additional irrigation

NOTE.—Also manurial crops in the entire irrigated area with light waterings, during April and May

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted				continued below
	Normal	Max.	Min.	Alamatti L.B. Canal	Alamatti R.B. Canal	Narayanpur L.B. Canal	Narayanpur R.B. Canal	
	.....inches.....			.....M.T.C.....				
June	3.5	4.3	1.2	6.91	1.75	5.39	4.75	
July	3.5	12.5	2.7	9.80	2.50	7.66	6.62	
August	3.8	8.5	1.4	7.99	2.07	6.24	5.39	
September	6.0	9.0	1.3	9.94	2.48	7.77	6.73	
October	3.3	7.0	1.2	8.44	2.18	6.90	5.74	
November	1.3	2.4	Nil	7.64	1.95	5.97	5.21	
December	0.2	0.8	"	6.20	1.58	4.84	4.18	
Jannary	0.2	0.1	"	6.28	1.61	4.91	4.25	
February	0.2	0.5	"	5.37	1.42	4.34	3.78	
March	0.3	0.1	"	1.54	0.39	1.20	1.05	
April	0.6	0.8	"	1.38	0.35	1.08	0.91	
May	1.3	0.4	0.4	4.58	1.19	3.64	3.17	
<b>Total</b>	<b>24.2</b>			<b>76.27</b>	<b>19.47</b>	<b>59.94</b>	<b>51.78</b>	

continued from above

Capacity factor			
Alamatti L.B. Canal	Alamatti R.B. Canal	Narayanpur L.B. Canal	Narayanpur R.B. Canal
0.68	0.68	0.69	0.70
0.94	0.93	0.95	0.95
0.76	0.77	0.77	0.77
0.98	0.96	1.00	1.00
0.81	0.81	0.85	0.82
0.76	0.75	0.77	0.77
0.59	0.59	0.60	0.60
0.60	0.60	0.61	0.61
0.57	0.59	0.60	0.60
0.15	0.15	0.15	0.15
0.14	0.14	0.14	0.14
0.44	0.44	0.45	0.46

Total of all Canals 207.46 T.M.C.

Deduct diversion proposed under Stage I 92.48 T.M.C.

Additional diversion 114.98 T.M.C.



12. Not available

13. (a) Characteristics of soils in the commanded area

Raichur District soils medium to deep black to grey in colour, lime carbonates nodules present, highly clayey texture. For Bijapur and Gulbarga Districts no scientific soil survey; same as in 11C.2-K.2-My-2

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the areas proposed to be irrigated

Kharif			Rabi		Total cropped area (T. acres)
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		
Jowar	Groundnut		Cotton	Millets	
25.0	30.0	660	25.0	20.0	540.0
					1,200.0

15. (a) Proposed pattern of irrigated cultivation

Perennial		Total area (T. acres)	Two seasonal		Total area (T. acres)	Kharif		continued below
Percentage of principal crops			Percentage of principal crops			Percentage of principal crops		
Sugarcane	Others		Others			Paddy	Jowar Oilseeds etc.	
5.0	2.0	84.0	5.0	60.0	18.0	25.0	516.0	

continued from above	Rabi			Total area (T. acres)	Grand Total area (T. acres)
	Percentage of principal crops				
	Jowar	Cotton	Wheat		
	25.0	10.0	10.0	540.0	1,200.0

(b) Are there any rules for regulating crop pattern ?

Legislation under consideration.

**16. Duty and Delta at Canal head (as anticipated)**

Duty (acres per mean cusec)					
Perennial		Two seasonal	Kharif		Rabi
Sugarcane	Other	Garden	Paddy	Others	
60	150	100	50	150	120

Continued below

continued  
from above

Delta (feet)						
Perennial		Two seasonal	Kharif		Rabi	Overall
Sugar-cane	Others	Garden	Paddy	Others		
12.2	4.8	4.9	5.4	1.8	2.3	4.0

Note : Manurial crops Duty 300, Delta 0.2 feet.

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

126 tanks, Ayacut, 3,600 acres, excluded from Ayacut

**(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

3,686 wells, irrigating 13,020 acres excluded from Ayacut

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available. The adequacy or otherwise of river supplies for the project would also be governed by the requirements of an integrated basin-wide plan

**19 to 21.** Not applicable**GENERAL****22- Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

**23.** Not applicable**24 to 26.** Not available**27** Not applicable**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

### GHATAPRABHA PROJECT STAGE III

46C.3-K.3-My.3

1. Name of State Mysore (formerly in Bombay)
2. Scope of the scheme or system  
Irrigation scheme; flow-cum-storage ; additional Ayacut 298, 000 acres
3. Source of supply  
Ghataprabha at Hidkal/Krishna  
Utilisation upstream : Existing: nil  
Proposed: minor schemes only
4. Description of the reservoir or tank  
The storage at Hidkal constructed under Ghataprabha (Stage I and II) to be modified to the following.

Total Live storage	48.05 T. M. C.
Annual reservoir losses	2.85 „
Total area submerged	19.500 acres
Full reservoir level	R. L. 3,175
Minimum pond level	R. L. 2,071

Other particulars as under 11B-K. 3-My.1
5. Description of the headworks  
Dam : 14,500 feet long , 168 feet high, other particulars as before
6. Description of the canal  
Ghataprabha Right Bank Canal (partly contour and partly ridge); 120 miles long; perennial; unlined; authorised capacity 2,000 cusecs
7. (a) Nature of investigations carried out up-to-date  
Project report ready  
(b) Actual or probable date of beginning of construction  
IV Plan
8. Probable date of beginning of operation  
about 1968

## IRRIGATION ASPECTS

## 9. Gross commanded area, culturable commanded area and Ayacut district-wise (Additional)

Item	Name of districts		Total
	Belgaum	Bijapur	
.....thousand acres.....			
G. C. A.	144.3	363.7	508.0
C. C. A.	101.0	255.6	356.6
Ayacut	129.0	169.0	298.0

## 10. Area proposed to be irrigated annually and intensity of irrigation (Additional)

	Area proposed to be irrigated		Intensity of irrigation percentage on Ayacut	
Perennial	8,000	Acres	2.7	Percent
Khari <sup>d</sup>	150,000	"	50.3	"
Rabi	125,000	"	42.0	"
Hot weather	15,000	"	5.0	"
<b>Total</b>	<b>298,000</b>	<b>"</b>	<b>100.0</b>	<b>"</b>

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....inches.....			T.M.C.	
June	2.8	5.7	0.3	2.6	0.50
July	3.8	11.8	1.2	4.1	0.76
August	2.4	7.5	0.3	4.1	0.76
September	3.8	1.1	0.4	4.0	0.77
October	4.5	12.1	0.6	3.9	0.73
November	1.8	5.5	Nil	3.2	0.62
December	0.1	1.6	„	3.6	0.67
January	0.1	0.9	„	3.6	0.67
February	Nil	0.6	„	2.2	0.45
March	0.1	0.7	„	1.2	0.22
April	1.1	2.4	0.1	1.1	0.21
May	3.1	6.5	0.1	1.2	0.22
Total	23.6			34.8	

12. Not available

3. (a) Characteristics of soils in the commanded area

Mal lands (upto 3 inches deep) 12.5 percent, light soils (3 to 18 inches deep) 31.1 percent, medium soils (18 to 48 inches deep) 25.4 percent, deep soils (more than 4 feet deep) 32.0 percent.

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics? No.

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif					Rabi					Total cropped area (T. (acres
Percentage of principal crops				Total area (T. acres	Percentage of principal crops				Total area (T. acres)	
Jowar	Bajra	Groundnut	Others		Jowar	Wheat	Cotton	Others		
13.0	16.1	7.0	10.5	138.7	29.8	8.2	11.4	4.0	159.0	297.8

15. (a) Proposed pattern of irrigated cultivation

Perennial				Kharif					Total area (T. acres)	continued below	
Percentage of principal crops			Total area (T.acres)	Percentage of principal crops							
Sugarcane					Jowar	Maize	Groundnut	Paddy			Others
2.7				8.0	20.0	10.0	10.0	5.0	5.3	150.0	

Rabi				Hot weather		Total area(T. acres)	Grand Total (T. acres)
Percentage of principal crops				Total area (T. acres)	Percentage of principal crops		
Jowar	Wheat	Cotton	Others		Others		
19.0	10.0	10.0	3.0	125.0	5.0	15.0	298.0

continued from above

16. Duty and Delta at distributory head (as anticipated)

Duty (acres per mean cusec)				Delta (feet)				
Kharif			Rabi	Kharif			Rabi	Overall
Perennial	paddy	Others		Perennial	paddy	Others		
50	45	130	115	13.4	6.7	2.0	2.2	2.7

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom  
Nil

- (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

**18. Quantum of river supplies available in relation to withdrawals**

The adequacy or otherwise of river supplies for this project would be governed by the requirements of a basin-wide Plan

**19 to 21.** Not applicable

**GENERAL**

- 22. Aspects other than irrigation and power ; water supply (month-wise) if any, required for these aspects ; financial returns**

Power may be developed, if found feasible

- 23. Extent and type of area submerged by reservoir**

Submergence 19,500 acres for full stage of Hidkal dam

- 24. Total cost of the scheme** Rs. 17,50 lakhs

- 25. Financial return of the scheme** 2.12 percent

- 26. Cost per acre irrigated** Rs 600/—

- 27. Not applicable**

- 28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture



## GHATAPRABHA PROJECT STAGE IV

47C.3-K.3-My.4

1. **Name of State** Mysore (formerly in Bombay)
2. **Scope of the scheme or system**  
Irrigation scheme; flow-cum-storage; additional Ayacut 166,000 acres under high level canal; increase of perennial irrigation under right and left bank low level canals
3. **Source of supply**  
(a) Ghataprabha at Hidkal, (b) Hiranyakeshi at Ajra/Ghataprabha  
(c) Markandeya at Sirur and Godehinmalk/Ghataprabha/Krishna  
No existing utilisation upstream, except small lift irrigation schemes on Hiranyakeshi

#### 4. to 5.

particulars not available; the intention is to build a dam each on the Hiranyakeshi and Markandeya tributaries of the Ghataprabha and to adjust the supplies on the Ghataprabha Project. The dam on the Hiranyakeshi at Ajra will be in Maharashtra

#### 6. Description of the canal

Ghataprabha High Level Canal (contour); left bank; 70 miles long; one seasonal, unlined, capacity 2,500 cusecs other canals as per 11B-K.3-My.1 and 46C3-K.3-My.3

#### 7. (a) Nature of investigations carried out up-to-date

Only preliminary investigation made so far

#### (b) Actual or probable date of beginning of construction

IV Plan

#### 8. Probable date of beginning of operation

Fourth year from beginning of construction

#### IRRIGATION ASPECTS

#### 9. Gross commanded area, Culturable commanded area and Ayacut district-wise (additional)

District	Belgaum
G. C. A.	270,000 acres
C. C. A.,	216,000 „
Ayacut	166,000 „

**10. Area proposed to be irrigated annually and intensity of irrigation***Area proposed to be irrigated | Intensity of irrigation on Ayacut***Right Bank and Left Bank (low level) Canals**

Perennial	40,000 acres	6.7 percent
<i>Kharif</i>	278,000 „	46.6 „
<i>Rabi</i>	248,000 „	41.6 „
Hot weather	30,000 „	5.1 „
<b>Total</b>	<b>596,000 „</b>	<b>100.0 „</b>
High level canal <i>Kharif</i>	166,000 „	100.0 „
Irrigated area as under <b>11B-K.3-My.1</b>		
and <b>4C.3-K.3-My.3</b>	596,000 „	
Additional irrigation	166,000 „	

**11. Normal rainfall and river supply proposed to be diverted**

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>			<i>Capacity factor</i>		
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Left Bank canal</i>	<i>High level canal</i>	<i>Right Bank canal</i>	<i>Left Bank canal</i>	<i>High Level canal</i>	<i>Right Bank canal</i>
	<i>..... inches.....</i>			<i>..... T.M.C.....</i>					
June	3.5	5.4	0.5	3.1	2.7	3.1	0.60	0.41	0.60
July	4.0	7.0	1.0	4.5	5.5	4.5	0.84	0.85	0.84
August	6.0	9.5	0.5	4.5	5.5	4.5	0.84	0.85	0.84
September	6.0	11.5	0.5	4.4	5.4	4.4	0.85	0.83	0.85
October	5.0	12.5	0.6	3.2	4.8	3.2	0.59	0.74	0.59
November	2.0	5.0	2.0	4.3	2.0	4.3	0.83	0.31	0.38
December	0.5	2.0	—	4.0	Nil	4.0	0.74	—	0.74
January	0.2	1.0	—	4.0	„	4.0	0.74	—	0.74
February	0.2	0.5	—	3.9	„	3.9	0.81	—	0.81
March	0.4	1.2	—	1.9	„	1.9	0.35	—	0.35
April	1.0	2.5	0.2	1.3	„	1.3	0.25	—	0.25
May	2.0	6.0	0.5	1.3	„	1.3	0.25	—	0.25
<b>Total</b>	<b>30.8</b>			<b>40.4</b>	<b>25.9</b>	<b>40.4</b>			

Total diversion by three Canals 106.7 T. M. C.

Deduct diversion proposed under stage I to III 69.6 T. M. C.

Additional diversion 37.1 T. M. C.

**12. Not available**



## 13. (a) Characteristics of soils in the commanded area

Black to light grey, rich in bases with high clay content and high water holding capacity; also red sandy loams, shallow to medium, pale to brown in colour; with good drainage and containing large percentage of coarser fractions

## (b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

## 14. Existing pattern of cultivation in the area proposed to be irrigated

## High Level Canal

Principal crops generally grown in the area are Jowar, Bajra Groundnuts and tobacco. Sugarcane and Betal leaves are grown where lift irrigation facilities exist. Further particulars not available

## Right and Left Bank Canal

Vide 11B-K.8-My.1 and 460.8(-)K.3-My.3

## 15. (a) Proposed pattern of irrigated cultivation

## High Level Canal

Kharif		Total area (T. acres)
Percentage of principal crops		
Paddy	Others	
50.5	49.5	166.0

Perennial		Kharif		Rabi		Hot weather		Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	Percentage of principal crops	Total area (T. acres)	
Others		Paddy	Others	Others		Others		
6.7	40.0	5.1	41.5	41.6	248.0	5.1	30.0	596.0

## (b) Are there any rules for regulating crop pattern?

Legislation under consideration

## 16. Duty and Delta at distributory head (as anticipated)

## (a) High Level Canal

Duty (acres per mean cusec)		Delta (feet)		Overall
Paddy	Others	Paddy	Others	
45	130	6.7	2.0	3.6

## (b) Right Bank and Left Bank Low level Canal

Duty (acres per mean cusec)				Delta (feet)				
Perennials	Kharif		Rabi	Perennial	Kharif		Rabi	Overall
	Paddy	Others			Paddy	Others		
50	45	130	115	13.4	6.7	2.0	2.2	2.6

17. Not available

18. Quantum of river supplies available in relation to withdrawals

The adequacy or otherwise of river supplies for this project would be governed by the requirements of an integrated basinwise plan.

19. to 21. Not applicable

19. to 21. Not applicable

GENERAL

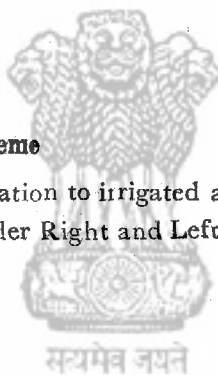
22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns Nil

23. to 26. Not available

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture under High Level Canal and increase of perennials under Right and Left Bank (low level) Canals



# **MARKENDEYA RESERVOIR PROJECT**

48C.3-N.3-My.5

1. Name of State Mysore (formerly in Bombay)
2. Scope of the scheme or system  
Irrigation scheme; flow-cum-storage; Ayacut 11,700 acres
3. Source of supply  
Markendeya at Shiur/Ghataprabha/Krishna  
Utilisation upstream; existing : water supply to Belgaum  
city 1.0 T.M.C. contemplated : nil. Catchment area 165 square miles
4. to 5. Not available
6. Description of the canals  
Left Bank Canal (contour; 10 miles long; seasonal; unlined; authorised capacity 90 cusecs  
Right Bank Canal (contour); 15 miles long; seasonal; unlined, authorised capacity 130 cusecs
7. (a) Nature of investigations carried out up-to-date  
Present proposals based on toposheet studies only  
(b) Actual or probable date of beginning of construction IV Plan
8. Probable date of beginning of operation 1966-67  
Three years, after beginning of construction

## **IRRIGATION ASPECTS**

9. Gross commanded area and culturable commanded area, district-wise

	<i>District</i>	<i>Belgaum</i>	
	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>	<i>Total</i>
	<i>.....thousand acres.....</i>		
G.C.A.	5.7	8.3	14.0
C.C.A.	5.3	7.7	13.0
Ayacut	4.8	6.9	11.7

10. Area proposed to be irrigated annually and intensity of irrigation

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation</i>
<i>Kharif (Paddy)</i>	11,700 acres	100.0 percent

# 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted		Capacity factor	
	Normal	Maximum	Minimum				
June	3.0	5.3	0.1	0.11	0.16	0.47	0.48
July	3.0	7.4	0.7	0.23	0.34	0.96	0.98
August	3.0	8.4	Nil	0.23	0.34	0.96	0.98
September	5.0	10.6	0.6	0.22	0.32	0.95	0.95
October	4.0	12.8	0.5	0.23	0.34	0.96	0.98
November	1.4	4.6	Nil	0.11	0.16	0.47	0.47
December	N.A.	N.A.	N.A.	Nil	Nil	..	..
January	..	..	..	..	..	..	..
February	..	..	..	..	..	..	..
March	..	..	..	..	..	..	..
April	..	..	..	..	..	..	..
May	..	..	..	..	..	..	..
<b>Total</b>	<b>19.4</b>			<b>1.14</b>	<b>1.66</b>		

Total for both canals

2.80 T.M.C.

12. Not available

13. (a) Characteristics of soils in the commanded area

Shallow to medium, deep black to grey in colour, and clayey in texture

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			Kharif					continued below	
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops						Total area (T. acres)
Sugar- cane	Others		Jouar	Bajri	Groundnut	Paddy	Others		
0.6	0.1	0.1	15.4	16.5	11.4	0.4	10.4		6.8

continued from above

Kabi					Total area (T. acres)	Total cropped area (T. acres)
Percentage of principal crops						
Jowar	Wheat	Cotton	Others			
24.3	5.0	7.9	4.4	4.8	11.7	

## 15. (a) Proposed pattern of irrigated cultivation

<i>Kharif</i>	
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>
<i>Paddy</i>	
100	11.7

## (b) Are there any rules for regulating crop pattern ?

Legislation under consideration.

## 16. Duty and Delta at distributory head (as anticipated)

<i>Duty</i> (acres per mean cusec)	<i>Delta</i> (feet)
<i>Kharif</i>	<i>Kharif</i>
<i>Paddy</i>	<i>Paddy</i>
55	5.5

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

## (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

31 wells, irrigating about 92 acres, excluded from Ayacut

## 18. Quantum of river supplies available in relation to withdrawals

River supply data not available

92. to 21. Not applicable

## GENERAL

## 22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. to 27. Not available

27. Not available

## 28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated paddy

**BHUTEWADI STORAGE SCHEME**

49-C. 3-K. 4-My.6

1. **Name of State** Mysore (formerly in Bombay)
2. **Scope of the scheme or system**  
Irrigation scheme; flow-cum-storage; Ayacut 45,000 acres
3. **Source of supply**  
Malaprabha near Bhutewadi/Krishna  
Catchment area 124 square miles
4. **Not available**
5. **Description of the headworks**  
Dam : Composite, 4,110 feet long, (including flanks), 150 feet high  
Spillway : masonry, 450 feet long, capacity 72,000 cusecs  
Outlets : particulars not available
6. **Description of the canals**  
Left Bank Canal (contour); 60 miles long; perennial; unlined; authorised capacity 170 cusecs.  
Right Bank Canal (contour); 75 miles long; perennial; unlined; authorised capacity 340 cusecs
7. (a) **Nature of investigations carried out up-to-date**  
Present proposals based on topo-sheet studies, preliminary surveys are in progress  
(b) **Actual or probable date of beginning of construction**  
IV Plan
8. **Probable date of beginning of operation**  
5th year from beginning of construction

**IRRIGATION ASPECTS****9. Gross commanded area, Culturable commanded area and Ayacut district-wise**

	Belgaum		
<i>District</i>			
<i>Item</i>	<i>Right Bank Canal</i>	<i>Left Bank Canal</i>	<i>Total</i>
	..... <i>Thousand acres</i> .....		
G. C. A.	50.0	25.0	75.0
C. C. A.	37.5	18.8	56.3
Ayacut	30.0	15.0	45.0

**10. Area proposed to be irrigated annually and intensity of irrigation (both canals)**

	<i>Area proposed to be irrigated</i>		<i>Intensity of irrigation</i>	
		acres		percent
Perennial	4,500		10.0	
Kharif	27,000	„	60.0	„
Rabi	13,500	„	30.0	„
Total	45,000	„	100 0	„

**11. Normal rainfall and river supply proposed to be diverted**

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>		<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Right Bank Canal</i>	<i>Left Bank Canal</i>	
	<i>..... inches .....</i>			<i>..... T. M. C. ....</i>		
June	5.8	11.6	1.5	0.44	0.22	0.50
July	16.0	20.5	5.3	0.80	0.40	0.88
August	6.0	9.3	3.8	0.80	0.40	0.88
September	4.5	6.0	1.0	0.77	0.39	0.88
October	4.8	9.8	0.8	0.74	0.37	0.81
November	1.7	4.1	Nil	0.58	0.29	0.66
December	0.3	0.4	„	0.31	0.16	0.34
January	0.1	0.2	„	0.31	0.15	0.34
February	0.1	0.1	„	0.28	0.14	0.34
March	0.3	1.0	„	0.11	0.05	0.12
April	1.5	2.5	0.3	0.05	0.03	0.06
May	2.3	6.4	0.8	0.05	0.02	0.05
Total	43.4			5.24	2.62	

Total diversion by both Canals **7.86**

**12. Not available****13. (a) Characteristics of soils in the commanded area**

Of lateritic origin

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

## 14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial		Kharif				Rabi				Total cropped area (T. acres)		
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops			Total area (T. acres)	Percentage of principal crops				Total area (T. acres)		
Sugarcane		Pad-dy	Jo-war	Grou-ndnut	Bar-jira	Jowar	Wheat	Cotton	Pulses			
2.0	0.9	8.0	15.0	11.0	12.0	20.7	21.0	5.0	8.0	18.0	23.4	45.0

## 15. (a) Proposed pattern of irrigated cultivation

Perennial		Kharif			Rabi			Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
Sugarcane		Paddy	Jowar		Jowar	Cotton		
10.0	4.5	40.0	20.0	27.0	20.0	10.0	13.5	45.0

(b) Are there any rules for regulating crop pattern ? Legislation under consideration

## 16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusecs)				Delta (feet)				
Perennial	Kharif		Rabi	Perennial	Kharif		Rabi	Overall
	Paddy	Others			Paddy	Others		
75	55	150	120	8.9	5.5	1.8	2.0	4.0

17. Not available

## 18. Quantum of river supplies available in relation to withdrawals

River supply data available at Bhutewadi from 1907-1926 ; average annual flow being 15.64 T. M. C.

19. to 21. Not applicable

## GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

4,600 acres in Mysore; other particulars not available

24. to 26. Not available

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture



## SATTINALA PROJECT

50C.3-K.4-My.7

1. **Name of State** Mysore (formerly in Bombay)
2. **Scope of the scheme or system**  
Irrigation scheme; flow-cum-storage; Ayacut 5,750 acres
3. **Source of supply**  
Sattinala near Dodebail/Malaprabha/Krishna  
Catchment area 26 square miles
4. **Not available**
5. **Description of the headworks**  
Dam : earthen, 2,320 feet long 51 feet high  
Spillway : masonry weir, 435 feet long, capacity 18,300 cusecs  
Outlets : two numbers 3 feet diameter each
6. **Description of the canal**  
Left Bank Canal (contour) ; 17 miles long ; two seasonal; unlined; authorised capacity 15 cusecs  
Right Bank canal (contour) ; 20.5 miles long ; two seasonal ; unlined : authorised capacity 15 cusecs.
7. (a) **Nature of investigations carried out up-to-date**  
Preliminary investigations have been carried out; estimate under preparation  
(b) **Actual or probable date of beginning of construction** IV Plan
8. **Probable date of beginning of operation**  
3rd year from beginning of construction  
IRRIGATION ASPECTS
9. **Gross commanded area, Culturable commanded area, and Ayacut district-wise (both canals)**

District	Belgaum	
G. C. A.	9,600	acres
C. C. A.	7,200	„
Ayacut	5,800	„

**10. Area proposed to be irrigated annually and intensity of irrigation (Both canals)**

	<i>Area proposed to be irrigated</i>		<i>Intensity of irrigation</i>	
<i>Kharif</i>	2,300	acres	39.7	percent
<i>Rabi</i>	3,500	,,	60.3	,,
<b>Total</b>	5,800	,,	100.0	,,

**11. Normal rainfall and river supply proposed to be diverted (both canals)**

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
	.....inches.....			.....T.M.C.....	
June	7.5	11.2	Nil	0.02	0.26
July	6.0	20.3	5.9	0.04	0.50
August	6.0	7.5	Nil	0.04	0.50
September	4.5	6.2	,,	0.04	0.51
October	4.8	10.1	,,	0.02	0.25
November	1.6	3.6	,,	0.08	1.0
December	0.3	0.5	,,	0.08	0.7
January	0.1	0.2	,,	0.08	1.00
February	0.1	0.1	,,	0.07	1.00
March	0.3	0.3	,,	Nil	0.96
April	1.5	2.9	,,	,,	—
May	2.3	6.5	,,	,,	—
<b>Total</b>	45.0			0.47	

12: Not available

**13. Characteristics of soils in the commanded area. Of lateritic origin**

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

## 14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial		Kharif				continue below
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops			Total area (T. acres)	
Sugarcane		Paddy	Jowar	Groundnut	Bajra	
2.0	0.1	8.0	15.0	11.0	12.0	2.7
continued from above		Rabi				Grand Total (T. acres)
		Percentage of principal crops			Total area (T. acres)	
		Jowar	Wheat	Cotton	Pulses	
		21.0	5.0	8.0	18.0	3.0
						5.8

## 15. (a) Proposed pattern of irrigated cultivation

Kharif		Rabi			Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
Jowar and Oilseeds		Jowar and Pulses	Wheat		
40.0	2.3	40.0	20.0	3.5	5.8

## (b) Are there any rules for regulating crop pattern ?

Legislation under consideration

## 16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)		Delta feet		
Kharif	Rabi	Kharif	Rabi	Overall
150	120	1.8	2.0	1.9

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

58 tanks ; irrigating 3,408 acres, excluded from the Ayacut

## (b) Number of wells in operation in the areas proposed to be irrigated and the area irrigated therefrom

3 wells ; irrigating 10 acres, excluded from the Ayacut

## 18. Quantum of river supplies available in relation withdrawals

River supply data not available

**19. to 21.** Not applicable

**GENERAL**

**22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

**23. to 26.** Not available

**27.** Not applicable

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture



**DON RIVER SCHEME**

51C.8-K.2-My.2

**1. Name of State**

Mysore ( formerly in Bombay )

**2. Scope of the scheme or system**

Irrigation scheme ; flow-cum-storage ; ayacut 25,000 acres

**3. Source of supply**

Don near Yembatnal/Krishna

No existing or proposed irrigation uses upstream

**4. to 6.** A reservoir is proposed on the Don, other particulars not available**7. (a) Nature of investigations carried out up-to-date**

Field investigation not yet undertaken, present proposal based on topo-sheet studies;

**(b) Actual or probable date of beginning of construction**

IV Plan

**8. Probable date of beginning of operation**

3rd year from beginning of construction

**IRRIGATION ASPECTS****9. Gross commanded area, Culturable commanded area and Ayacut district-wise**

District Bijapur

G. C. A. 62,100 acres

C. C. A. 31,300 „

Ayacut 25,000 „

**10. Area proposed to be irrigated annually and intensity of irrigation**

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation</i>	
(i) <i>Kharif</i>	10,000 acres	40.0	percent.
(ii) <i>Rabi</i>	15,000 „	60.0	„
(in) Total	25,000	100.0	„

12. Not available

**13. (a) Characteristics of soils in the commanded area**

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics? No

**14. Existing pattern of cultivation in the areas proposed to be irrigated**

Kharif			Rabi					Total cropped area (T. acres)	
Percentage of principal crops			Total area(T. acres)	Percentage of principal crops					Total area(T. acres)
Jowar	Groundnut	Rajra		Jowar	Cotton	Wheat	Pulses		
20.0	12.0	13.0	11.3	22.0	14.0	6.0	13.0	13.7	25.0

**15. (a) Proposed pattern of irrigated cultivation**

<i>Kharif</i>			<i>Rabi</i>				<i>Grand total (T. acres)</i>
<i>Percentage of principal crops</i>		<i>Total area T. acres</i>	<i>Percentage of principal crops</i>			<i>Total area (T. acres)</i>	
<i>Paddy</i>	<i>Jowar, Oil-seeds etc.</i>		<i>Jowar</i>	<i>Wheat</i>	<i>Cotton</i>		
16.0	24.0	10.0	30.0	20.0	10.0	15.0	25.0

**(b) Are there any rules for regulating crop pattern ?**

Legislation under consideration

**16. Duty and Delta at canal head (as anticipated)**

<i>Duty (acres per mean cusec)</i>			<i>Delta (feet)</i>			
<i>Kharif</i>		<i>Rabi</i>	<i>Kharif</i>		<i>Rabi</i>	<i>Overall</i>
<i>Paddy</i>	<i>Others</i>		<i>Paddy</i>	<i>Others</i>		
55	150	120	5.5	1.8	2.0	2.5

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

**(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

492 wells, irrigating 1,292 acres, excluded from Ayacut

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**19. to 21. Not applicable****GENERAL****22. Aspects other than irrigation and power; water supply (month-wise) if any; required for these aspects; financial returns**

Nil

**23 to 26. Not available****27. Not applicable****28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

## BHIMA LIFT IRRIGATION SCHEME

52 C.3-K.6-My.9

1. **Name of State** Mysore (formerly in Hyderabad)
2. **Scope of the scheme or system**  
Irrigation scheme ; storage-cum-lift ; 95 feet lift ; Ayacut 100,000 acres power for lifting from Kali Nadi Project (about 25 miles away)
3. **Source of supply**  
Bhima at Afzalpur (about 120 miles above Yadgir)/Krishna, considerable irrigation uses upstream, both existing and contemplated
4. **Description of the reservoir or tank**  
Catchment area 20,130 square miles ; other particulars not available.
5. **Description of the head works**  
Proposed masonry dam across Bhima river to impound water for non-monsoon requirements ; particulars not available
6. **Description of the canal**  
Left Bank Canal (contour) ; 56 miles lined ; perennial ; authorised capacity 820 cusecs
7. (a) **Nature of investigations carried out up to date**  
Only preliminary investigations made so far  
(b) **Actual or probable date of beginning of construction**  
V Plan
8. **Probable date of beginning of operation**  
4th years from beginning of construction

### IRRIGATION ASPECTS

#### 9. Gross commanded area, Culturable commanded area and Ayacut district-wise

District	Gulbarga
G. C. A.	166,000 acres
C. C. A.	125,000 „
Ayacut	100,000 „



**10. Area proposed to be irrigated annually and intensity of irrigation**

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
Perennial	10.0	10.0
Kharif	65.0	65.0
Rabi	25.0	25.0
Total	100.0	100.0

**11. Normal rainfall and river supply proposed to be diverted**

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity Factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
June	3.5	7.5	1.7	1.24	0.58
July	4.5	9.8	3.7	2.20	1.00
August	4.5	10.5	1.4	2.20	1.00
September	7.0	14.7	2.4	2.13	1.00
October	2.9	6.9	0.6	1.77	0.80
November	1.3	8.8	Nil	1.40	0.66
December	0.3	0.4	"	0.91	0.41
January	0.2	0.3	"	0.91	0.41
February	0.2	1.8	"	0.85	0.43
March	0.3	1.0	"	0.36	0.16
April	0.8	1.5	"	0.17	0.08
May	1.0	9.5	"	0.17	0.08
Total	26.5			14.31	

**12. Not available****13. (a) Characteristic of soils in the commanded area**

Deep black soils and red sandy loams

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics? No

**14. Existing pattern of cultivation in the areas proposed to be irrigated**

Kharif					Rabi				Total cropped area (T. acres)
Percentage of principal crops				Total area (T. acres)	Percentage of principal crops			Total area (T. acres)	
Jowar	Ground- nut	Bajra	Paddy and Others		Jowar	Wheat	Pulses Others		
10.0	11.0	6.0	5.0	32.0	34.0	3.0	31.0	68.0	100.0

**15. (a) Proposed pattern of irrigated cultivation**

Perennial		Kharif				Rabi				Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops			Total area (T. acres)	Percentage of principal crops			Total area (T. acres)	
		Paddy	Jowar	Oil seed		Jowar	Cotton	Wheat		
Sugarcane										
10.0	10.0	22.0		43.0	65.0	15.0	5.0	5.0	25.0	100.0

**(b) Are there any rules for regulating crop pattern ?**

Legislation under consideration

**16. Duty and Delta at canal head (as anticipated)**

Duty (Acres per mean cusecs)				Delta (feet)				
Kharif			Rabi	Kharif			Rabi	Overall
Perennial	Paddy	Others		Perennial	Paddy	Others		
75	55	150	120	8.9	5.5	1.8	2.0	3.3

17. Not available

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available, the adequacy or otherwise of river supplies for this project would also be governed by the requirements of an integrated basin-wide plan

19. to 21. Not applicable

**GENERAL****22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. Extent and type of area submerged by reservoir**

Submergence within Mysore ; particulars not available

24. to 26. Not available

27. Not applicable

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

## **BHIMA IRRIGATION SCHEME**

**58C.3-K.6-My.10**

- 1. Name of State** Mysore (formerly in Hyderabad)
- 2. Scope of the scheme or system**  
Irrigation scheme ; flow-cum-storage ; Ayacut 100,000 acres
- 3. Source of supply**  
Bhima at Thangadgi/about 12 miles above Yadgir/Krishna  
Considerable uses upstream, both existing and contemplated
- 4. Description of the reservoir or tank**  
Catchment area 26,750 square miles ; live storage 9.4 T.M.C. ; other particulars not available
- 5. Description of the headworks**  
Dam : masonry with earthen flanks, length 16,800 feet, 75 feet high  
Spillway : masonry, 3,000 feet long, capacity 800,000 cusecs  
Outlets : two, particulars not available
- 6. Description of the canals**  
Left Bank Canal (contour) ; 29 miles long ; lined ; perennial ; authorised capacity 328 cusecs  
Right Bank Canal (contour) ; 33 miles long : lined ; perennial ; authorised capacity 492 cusecs
- 7. (a) Nature of investigations carried out up-to-date**  
Detailed surveys for dam and canals have been completed ; project report under preparation  
  
**(b) Actual or probable date of beginning of construction**  
IV Plan
- 8. Probable date of beginning of operation**  
5th year from beginning of construction

## IRRIGATION ASPECTS

## 9: Gross commanded area, Culturable commanded area and Ayacut district-wise

District Gulbarga

	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>	<i>Total</i>
	<i>.....thousand acres.....</i>		
G.C.A.	66.7	100.0	166.7
C.C.A.	50.0	72.5	122.5
Ayacut	40.0	60.0	100.0

## 10. Area proposed to be irrigated annually and intensity of irrigation (both canals)

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation</i>
Perennial	10,000 acres	10.0 percent
Kharif	65,000 „	65.0 „
Rabi	25,000 „	25.0 „
Total	100,000 „	100.0 „

## 11. Normal rainfall and river supply proposed to be diverted

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>		<i>Capacity factor</i>	
	<i>Normal</i>	<i>Max.</i>	<i>Min.</i>	<i>Left Bank</i>	<i>Right Bank</i>	<i>Left Bank</i>	<i>Right Bank</i>
	<i>.....inches.....</i>			<i>..... T.M.C. ....</i>			
June	3.5	10.6	Nil	0.74	0.49	0.58	0.58
July	4.5	13.7	3.0	1.32	0.88	0.99	0.99
August	4.5	7.6	2.0	1.32	0.88	0.99	0.99
September	6.5	12.5	1.5	1.28	0.85	0.99	1.00
October	2.8	8.5	0.7	1.08	0.72	0.82	0.82
November	1.2	4.6	Nil	0.84	0.56	0.66	0.66
December	0.2	1.8	„	0.55	0.36	0.42	0.41
January	0.1	0.2	„	0.55	0.36	0.42	0.41
February	0.3	0.4	„	0.50	0.33	0.42	0.42
March	0.3	0.5	„	0.21	0.14	0.16	0.16
April	0.8	1.1	„	0.10	0.07	0.08	0.08
May	1.0	5.0	„	0.10	0.07	0.07	0.08
Total	25.7			8.59	5.71		
Total for both canals				14.30			

12. Not available

13. (a) Characteristics of soils in the commanded area

Right Canal red and sandy loam

Left Canal red and black soils

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

14. Existing pattern of cultivation in the areas proposed to be irrigated

Kharif				Total areas (T. acres)	Rabi			Total area (T. acres)	Total cropped area (T. acres)
Percentage of principal crops					Percentage of principal crops				
Paddy	Jowar	Ground nut	Bajra		Jowar	Wheat	Pulses and other Rabi		
5.0	10.0	11.0	6.0	32.0	34.0	3.0	31.0	68.0	100.0

15. (a) Proposed pattern of irrigated cultivation

Perennial	Total area (T. acres)	Kharif			Rabi			Grand Total T. % ecres
Percentage of principal crops		Percentage of principal crops		Total area (T. acres	Percentage of principal crops		Total area (T. acres	
Sugarcane		Paddy	Jowar oil seeds etc.		Jowar & Pulses	Cotton		
10.0	10.0	22.0	43.0	65.0	15.0	10.0	25.0	100.0

(b) Are there any rules for regulating crop pattern?

Legislation under consideration

16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)				Delta (feet)				
Perennial	Kharif		Rabi	Perennial	Kharif		Rabi	Overall
	Paddy	Others			Paddy	Others		
75	55	150	120	8.9	5.5	1.8	2.0	3.3

17. Not available

18. Quantum of river supplies available in relation to withdrawals

River supply data not adequate. However supplies stated to be adequate for the requirements of this project; but their adequacy or otherwise would be governed by the requirements of a basin wide plan

19. to 21. Not applicable

#### GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns Nil

23. to 26. Not available

27. Not applicable.

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

# DIKSANGA SCHEME

54C.3-K.6-My.11

1. Name of State Mysore (formerly in Hyderabad)
2. Scope of the scheme or system  
Irrigation scheme flow cum-storage ; Ayacut 6,800 acres
3. Source of supply  
Bori at Diksanga/Bhima/Krishna
4. Description of the reservoir or tank  
Catchment area 784 square miles, other particulars not available
- 5.-6. Not available
7. (a) Nature of investigations carried out up-to-date  
Field investigation not yet undertaken, present proposals based on topo-sheet studies  
(b) Actual or probable date of beginning of construction  
IV Plan
8. Probable date of beginning of operation  
3rd year from beginning of operation

## IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, and Ayacut district-wise

District Gulbarga

G.C.A.	11,400 acres
C.C.A.	8,500 „
Ayacut	6,800 „

10. Area proposed to be irrigated annually and intensity of irrigation (both canals)

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
(i) Perennial	700 acres	10.0 percent
(ii) Kharif	4,100 „	60.0 „
(iii) Rabi	2,000 „	30.0 „
Total	6.8	100.0 „

**11. Normal rainfall and river supply proposed to be diverted**

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
.....inches.....			T.M.C.		
June	4.0	7.5	1.7	0.09	0.58
July	5.5	9.8	3.7	0.15	0.93
August	5.0	10.5	1.4	0.15	0.93
September	7.0	14.7	2.4	0.15	0.97
October	2.8	6.9	0.6	0.13	0.81
November	1.1	8.8	Nil	0.11	0.71
December	0.2	0.4	,,	0.07	0.44
January	0.2	0.3	,,	0.07	0.44
February	0.3	1.8	,,	0.06	0.42
March	0.3	1.0	,,	0.02	0.12
April	0.9	1.5	,,	0.01	0.06
May	1.0	9.5	,,	0.01	0.06
Total	28.3			1.02	

12. Not available

**13. (a) Characteristics of soils in the commanded area**

Sandy to sandy loan in texture, red to pale brown in colour, of shallow to medium depth and well drained.

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

**14. Existing pattern of cultivation in the areas proposed to be irrigated**

Kharif					Rabi				Total cropped area (T. acres)
Percentage of principal crops				Total area (T. % acres	Percentage of principal crops			Total area (T. acres)	
Paddy and others	Jowar	Groundnut	Bajra		Jowar	Wheat	Pulses & Others		
5.0	10.0	11.0	6.0	2.2	24.0	3.0	31.0	4.6	6.8

**15 (a) Proposed pattern of irrigated cultivation**

Perennial		Kharif			Rabi				Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops			Total area (T. acres)	
Sugarcane		Paddy	Jowar oil- seeds etc.		Jowar	Wheat	Cotton		
10.0	0.7	25.0	35.0	4.1	15.0	5.0	10.0	2.0	6.8

**(b) Are there any rules for regulating crop pattern ?**

Legislation under consideration

**16. Duty and Delta at canal head (as anticipated ?**

<i>Duty</i> (acres per mean cusec)				<i>Delta</i> (feet)				
<i>Perennial</i>	<i>Kharif</i>		<i>Rabi</i>	<i>Perennial</i>	<i>Kharif</i>		<i>Rabi</i>	<i>Overall</i>
	<i>Paddy</i>	<i>Others</i>			<i>Paddy</i>	<i>Others</i>		
75	55	150	120	8.9	5.5	1.8	2.0	3.4

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

**(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

73 wells; irrigating 82 acres, not included in the Ayacut

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**19. to 21. Not applicable****GENERAL****22. Aspects of other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23. to 26. Not available****27. Not applicable****28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture



**AMARJA PROJECT****55C.3-K.6-My.12**

1. **Name of State** Mysore (formerly in Hyderabad)
2. **Scope of the scheme or system**  
Irrigation scheme; flow-cum-storage; Ayacut 16,500 acres
3. **Source of supply**  
Amarja at Kolari/Bhima/Krishna
4. **Description of the reservoir or tank**  
Caschment area 275 square miles, other particulars not available
5. **Description of the headworks**  
Dam : earthen, 2,950 feet long, 78 feet high  
Spillway: masonry, 1,200 feet long, capacity 67, 510 cusecs  
Outlets : particulars not available
6. **Description of the canals**  
Right Bank Canal (contour) ; 20 miles long; unlined; perennial; authorised capacity 45 cusecs  
Left Bank Canal (contour) ; 30 miles; unlined; perennial; authorised capacity 70 cusecs
7. (a) **Nature of investigations carried out up-to-date**  
Detailed survey for the dam has been completed and the project report is under preparation  
(b) **Actual or probable date of beginning of construction**  
IV Plan
8. **Probable date of beginning of operation**  
4th year from beginning of construction

**IRRIGATION ASPECTS**

9. **Gross commanded area, Culturable commanded area and Ayacut district-wise**  
District Gulbarga

	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>	<i>Total</i>
	<i>.....thousand acres.....</i>		
G.C.A.	16.6	10.9	27.5
C.C.A.	12.5	8.1	20.6
Ayacut	10.0	6.5	16.5

**10. Area proposed to be irrigated annually and intensity of irrigation**

	<i>Area proposed to be irrigated</i>		<i>Intensity of irrigation</i>	
(i) Perennial	1,600	acres	9.7	hercent
(ii) <i>Kharif</i>	9,600	„	58.2	„
(iii) <i>Rabi</i>	5,300	„	32.1	„
(iv) Total	16,500	„	100.0	„

**11. Normal rainfall and river supply proposed to be diverted**

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>		<i>Capacity factor</i>	
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>	<i>Right Bank Canal</i>	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>	<i>Left Bank Canal</i>
	<i>.....inches.....</i>			<i>.....T.M.C.....</i>			
June	4.0	9.9	1.3	0.07	0.11	0.58	0.61
July	5.0	9.4	5.7	0.12	0.19	1.00	1.00
August	4.5	20.3	1.1	0.12	0.19	1.00	1.00
September	7.0	11.5	4.0	0.12	0.18	1.00	0.99
October	2.8	6.4	1.2	0.10	0.15	0.83	0.80
November	1.2	2.4	Nil	0.09	0.14	0.77	0.77
December	0.3	1.3	„	0.07	0.11	0.58	0.59
January	0.2	0.4	„	0.07	0.11	0.58	0.59
February	0.3	0.5	„	0.06	0.10	0.55	0.57
March	0.3	1.5	„	0.02	0.04	0.17	0.21
April	0.8	1.5	„	0.01	0.02	0.09	0.11
May	1.0	6.0	„	0.01	0.02	0.08	0.11
Total	27.4			0.86	1.36		
Total for both canals			2.22				

**12. Not available****13. (a) Characteristics of soils in the commanded area**

Red to pale brown in colour, sandy to sandy loam, shallow to medium, well drained

**(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?**

No

## 14. Existing pattern of cultivation in the areas proposed to be irrigated

Kharif					Rabi				Total cropped (area T. acres)
Percentage of principal crops				Total of (area T. acres)	Percentage of principal crops			Total (area T. acres)	
Paddy and others	Jowar	Ground nut	Bajra		Jowar,	Wheat	Pulses and others		
5.0	10.0	11.0	6.0	5.3	34.0	3.0	31.0	11.2	16.5

## 15. (a) Proposed pattern of irrigated cultivation

Perennial		Kharif			Rabi			Grand Total (T. acres)	
Percentage of principal crops	Total (area T. acres)	Percentage of pri- ncipal crops	Total (area T. acres)	Percentage of principal crops			Total (area T. acres)		
Sugarcane		Paddy	Jowar oil- seeds etc.	Jowar	Cotton	Wheat			
10.0	1.6	15.0	43.0	9.6	20.0	7.0	5.0	5.3	16.5

## (b) Are there any rules for regulating crop pattern?

Legislation under consideration

## 16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cuses)				Delta (feet)				
Perennial	Kharif		Rabi	Perennial	Kharif		Rabi	Overall
	Paddy	Others			Paddy	Others		
75	55	150	120	8.9	5.5	1.8	2.0	3.7

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

90 acres irrigated by tanks, excluded from Ayacut

## (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

19 wells, irrigating 57 acres, excluded from Ayacut

## 18. Quantum of river supplies available in relation to withdrawals

River supply data not available

## 19. to 21. Not applicable

## GENERAL

## 22. Aspects other than irrigation and power; water supply (month-wise), if any; required for these aspects financial returns

Nil

- 23. Extent and type of area submerged by reservoir**  
 2,980 acres in Mysore; 1,787 acres cultivated rest uncultivated
- 24. to 26.** Not available
- 27.** Not applicable
- 28. Main features and purpose of the scheme**  
 Conversion of rain-fed cultivation to irrigated agriculture



# KAGNA PROJECT

56C.3-K.6-My. 13

1. Name of State Mysore (formerly in Hyderabad)
2. Scope of the scheme or system  
Irrigation scheme; flow-cum-storage; Ayacut 40,000 acres
3. Source of supply  
Kagna at Yedhalli/Bhima/Krishna  
Upstream utilisation: Nil
- 4.—5. Catchment area 1,630 square miles; other particulars not available
6. Description of the canals  
Right Bank Canal (contour) ; length not determined; two-seasonal; unlined; authorised capacity 60 cusecs  
Left Bank Canal (contour) ; length not determined; two-seasonal; unlined; authorised capacity 175 cusecs
7. Nature of investigations carried up-to-date  
Present proposals based on topo-sheet studies  
(b) Actual or probable date of beginning of construction  
IV Plan
8. Probable date of beginning of operation  
5th year from beginning of construction

## IRRIGATION ASPECTS

9. Gross commanded area, Culturable commanded area and Ayacut district-wise  
District Gulbarga

	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>	<i>Total</i>
	<i>.....thousand acres.....</i>		
G.C.A:	51.2	15.5	66.7
C.C.A:	38.4	11.6	50.0
Ayacut	30.7	9.3	40.0

10. Area proposed to be irrigated annually and intensity of irrigation

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
(i) <i>Khariif</i>	30,000 acres	75.0 percent
(ii) <i>Rabi</i>	10,000 „	25.0 „
(iii) Total	40,000 „	100.0 „

Month	Rainfall			River supply proposed to be diverted		Capacity factor	
	Normal	Maximum	Minimum	Right Bank Canal	Left Bank Canal	Right Bank Canal	Left Bank Canal
1	2	3	4	5	6	7	8
	.....inches.....			.....T.M.C.....			
June	4.0	4.9	2.0	0.07	0.22	0.45	0.48
July	5.5	10.0	4.7	0.15	0.46	0.93	0.98
August	5.0	8.2	3.4	0.15	0.46	0.93	0.98
September	7.0	14.5	4.8	0.14	0.45	0.90	0.99
October	2.8	8.4	0.6	0.08	0.26	0.50	0.55
November	1.1	1.2	Nil	0.07	0.11	0.45	0.24
December	0.2	0.4	"	0.05	0.07	0.31	0.15
January	0.2	0.3	"	0.05	0.07	0.31	0.15
February	0.3	1.3	"	0.05	0.07	0.34	0.17
March	0.3	1.4	"	Nil	Nil	—	—
April	0.9	1.0	"	"	"	—	—
May	1.0	6.2	"	"	"	—	—
Total	28.3			0.81	2.17		
Total diversion by both Canals			2.98	T.M.C.			

13. (a) Characteristics of soils in the commanded area

(b) Has only study been made of the likely effect of the introduction of irrigation on soil characteristics ?

**14. Existing pattern of cultivation in the area proposed to be irrigated**

Kharif					Rabi				Total cropped area (T. acres)
Percentage of principal crops				Total area (T. acres)	percentage of principal crops			Total area (T. acres)	
paddy and others	Jowar	Ground- nut	Bajra		Jowar	Wheat	Other		
5.0	10.0	11.0	6.0	12.8	34.0	8.0	31.0	27.2	40.0

## 15. (a) Proposed pattern of irrigated cultivation

Kharif				Rabi				Grand Total (T. acres)
Percentage of principal crops			Total area (T. acres)	percentage of principal crops			Total area (T. acres)	
paddy	Jowar	Oilseeds etc.		Jowar	Wheat	Cotton		
5.0	70.0			30.0	15.0	5.0		

## (b) Are there any rules for regulating crop pattern ?

Legislation under consideration

## 16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)			Delta (feet)			
Kharif		Rabi	Kharif		Rabi	Overall
paddy	Others		Paddy	Others		
55	150	120	5.5	1.8	2.0	1.7

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

## (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

3 wells, irrigating 13 acres; area excluded from the Ayacut

## 18. Quantum of river supplies available in relation to withdrawals

River supply data not available

## 19. to 21 Not applicable

## GENERAL

## 22. Aspects other than irrigation and power; water supply (month-wise) if any, required for these aspects; financial returns

Nil

## 23 to 26. Not available

## 27. Not applicable

## 28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

## MULLAMARI PROJECT

57.C.3-K.6-My.14

1. **Name of State** Mysore (formerly in Hyderabad)
2. **Scope of the scheme or system**  
Irrigation scheme ; flow-cum-storage ; Ayacut 24,200 acres
3. **Source of supply**  
Mullamari at Karkmukli/Bhima/Krishna
4. **Description of the reservoir or tank**  
Catchment area upstream 325 square miles ; other particulars not available
5. **Description of the headworks**  
Dam : earthen, 4,150 feet long, 94 feet high  
Spillway : masonry, 1,450 feet long, capacity 75,540 cusecs  
Outlet : one, capacity 168 cusecs
6. **Description of the canal**  
Mullamari Canal (contour) ; right bank ; 32 miles long ; perennial ; unlined ; authorised capacity 168 cusecs
7. (a) **Nature of investigation carried out up-to-date**  
Detailed surveys for dam and canal completed ; project report ready  
(b) **Actual or probable date of beginning of construction**  
IV Plan
8. **Probable date of beginning of operation**  
4th year from beginning of construction

### IRRIGATION ASPECTS

9. **Gross commanded area, Culturable commanded area and Ayacut district-wise**  
District Gulbarga

G.C.A.	40,300	acres
C.C.A.	30,300	„
Ayacut	24,200	„



**10. Area proposed to be irrigated annually and intensity of irrigation**

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation on Ayacut</i>
Perennial	2,400 acres	58.3 percent
Kharif	14,100 „	31.8 „
Rabi	7,700 „	9.9 „
<b>Total</b>	<b>24,200 „</b>	<b>100.0 „</b>

**11. Normal rainfall and river supply proposed to be diverted**

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
	<i>.....inches.....</i>			<i>.....T.M.O.....</i>	
June	4.0	11.8	3.5	0.26	0.60
July	6.5	11.4	3.0	0.44	0.98
August	5.5	14.7	3.5	0.44	0.98
September	7.0	11.5	Nil	0.43	0.99
October	2.0	5.4	„	0.35	0.78
November	0.7	12.4	„	0.33	0.76
December	0.2	2.4	„	0.26	0.58
January	0.2	0.2	„	0.26	0.58
February	0.3	1.0	„	0.23	0.57
March	0.3	1.9	„	0.08	0.18
April	0.9	0.9	„	0.04	0.09
May	1.0	2.4	„	0.04	0.09
<b>Total</b>	<b>28.6</b>			<b>3.16</b>	

**12. Not available****13. (a) Characteristics of soils in the commanded area**

Deep black soil having concretionary trap stones and lime nodules, high base status and clayey texture.

**(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?**

No

**14. Existing pattern of cultivation in the areas proposed to be irrigated**

<i>Kharif</i>					<i>Rabi</i>				<i>Total cropped area (T. acres)</i>
<i>Percentage of principal of crops</i>				<i>Total area (T. acres</i>	<i>Percentage of principal crops</i>			<i>Total area (T. acres</i>	
<i>Paddy &amp; Others</i>	<i>Jowar</i>	<i>Ground nut</i>	<i>Bajra</i>		<i>Jowar</i>	<i>Wheat</i>	<i>Pulses and others</i>		
5.0	10.0	11.0	6.0	7.7	34.0	3.0	31.0	16.5	24.2

**15. (a) Proposed pattern of irrigated cultivation**

Perennial		Kharif			Rabi			Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
Sugarcane		Paddy	Others		Jowar	Cotton		
10.0	2.4	15.0	43.0	14.1	20.0	12.0	7.7	24.2

**(b) Are there any rules for regulating crop pattern ?**

Legislation under consideration

**16. Duty and delta at canal head (as anticipated)**

<i>Duty (acres per mean cusec)</i>				<i>Delta (feet)</i>			
<i>Perennial</i>	<i>Kharif</i>		<i>Rabi</i>	<i>Perennial</i>	<i>Kharif</i>		<i>Over all</i>
	<i>Paddy</i>	<i>Others</i>			<i>Paddy</i>	<i>Others</i>	
75	55	150	120	8.9	5.5	1.8	2.0

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

**(b) Number of wells in operation in the area proposed to be irrigated**

30 wells; irrigating 105 acres, area excluded from Ayacut

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**19. to 21. Not applicable**

## GENERAL

- 22- Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

- 23. Extent and type of area submerged by reservoir**

The entire submergence is in Mysore (cultivated 2,467 acres, rest is uncultivated or fallow)

- |  |   |      |         |
|--|---|------|---------|
| <b>24. Total cost of the scheme</b>                | Rs  | 2,00 | lakhs   |
| <b>25. Financial return of the scheme</b>          |   | 1.47 | percent |
| <b>26. Cost per acre irrigated</b>                 | Rs  | 826  |         |
| <b>27.</b>   | Not applicable  |      |         |
| <b>28. Main features and purpose of the scheme</b> | Conversion of rain-fed cultivation to irrigated agriculture |      |         |



# CHANDRAMAPALLY PROJECT

580.8-K.6-My.15

1. Name of State Mysore ( formerly in Hyderabad)

2. Scope of the scheme or system

Irrigation scheme; flow-cum-storage; ayacut 10,500 acres

3. Source of supply

Sarnala at Chandrampally/Bhima/Krishna

Utilisation upstream : Nil

4-5. Catchment area 170 square miles, other particulars not available

6. Description of the canals

Right Bank Canal (contour); unlined; perennial; length not available, authorised capacity 35 cusecs

Left Bank Canal (contour) ; unlined ; perennial, length not available, authorised capacity 45 cusecs

7. (a) Nature of investigations carried out up-to-date

Present proposals based on topo-sheet studies only

(b) Actual or probable date of beginning of construction

IV Plan

8. Probable date of beginning of operation

3rd year from beginning of construction

IRRIGATION ASPECTS

9. Gross commanded area, Culturable commanded area and Ayacut, district-wise

	District	Gulbarga
G.C.A		17,500 acres
C.C.A		13,100 „
Ayacut		10,500 „

10. Area proposed be irrigated annually and intensity of irrigation (both canals)

	Area proposed to be irrigated		Intensity of irrigation	
Perennial	1,000	acres	9.5	percent
Kharif	6,100	„	58.1	„
Rabi	3,400	„	32.4	„
Total	10,500	„	100.0	„

## 11. Normal rainfall and river supply proposed to be diverted (both canals)

Month	Rainfall			River supply proposed to be diverted		Capacity factor	
	Normal	Maximum	Minimum	Right Bank Canal	Left Bank Canal	Right Bank Canal	Left Bank Canal
	.....inches.....			.....T.M.C.....			
June	4.0	11.8	3.5	0.04	0.10	0.44	0.85
July	6.5	11.4	3.0	0.08	0.12	0.85	1.00
August	5.5	14.7	3.5	0.08	0.12	0.85	1.00
September	7.0	11.5	Nil	0.09	0.11	0.99	0.94
October	2.0	5.4	,,	0.06	0.09	0.64	0.75
November	0.7	12.4	,,	0.06	0.08	0.66	0.69
December	0.2	2.4	,,	0.05	0.07	0.53	0.58
January	0.2	0.2	,,	0.05	0.07	0.53	0.58
February	0.3	1.0	,,	0.04	0.06	0.47	0.55
March	0.3	1.9	,,	0.02	0.02	0.21	0.17
April	0.9	0.9	,,	0.01	0.01	0.11	0.09
May	1.0	2.4	,,	0.01	0.01	0.11	0.08
<b>Total</b>	<b>28.6</b>			<b>0.59</b>	<b>0.86</b>		

Total diversion by both canals

1.45

## 12. Not available

## 13. (a) Characteristics of soils in the commanded area

Deep black soil with concretionary trap stones, lime nodules present, high base status, clayey in texture

## (b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

## 14. Existing pattern of cultivation in the areas proposed to be irrigated

Kharif					Rabi			Total area (T. acres)	Total cropped area (T. acres)
Percentage of principal crops				Total area(T. acres)	Percentage of principal crops				
Paddy and Others	Jowar	Ground- nut	Bajra		Jowar	Wheat	Others		
5.0	10.0	11.0	6.0	3.4	34.0	3.0	31.0	7.1	10.5

## 15. (a) Proposed pattern of irrigated cultivation

Perennial		Kharif		Rabi		Grand total T. acres)		
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops		Percentage of principal crops			Total area (T. acres)	
Sugarcane		Paddy	Others	Jowar	Cotton			
10.0	1.0	15.0	43.0	6.1	20.0	12.0	3.4	10.5

## (b) Are there any rules for regulating crop pattern ?

Legislation under consideration

## 16. Duty and Delta at canal head ( as anticipated )

Duty (acres per mean cusec)				Delta (feet)				
Perennial	Kharif		Rabi	Perennial	Kharif		Rabi	Over all
	Paddy	Others			Paddy	Others		
75	55	150	120	8.9	5.5	1.8	2.0	3.2

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

## (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

35 wells; irrigating 130 acres; excluded from Ayacut

## 18. Quantum of river supplies available in relation withdrawals

River supply data not available

## 19 to 21

Not applicable

## GENERAL

## 22. Aspects other than irrigation and power; water supply (month-wise) if any, required for these aspects; financial returns

Nil

## 23—26. Not available

## 27. Not applicable

## 28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

**BENITHORA PROJECT**

59C.3-K.6-My.16

**1. Name of State**

Mysore (formerly in Hyderabad)

**2. Scope of the scheme or system**

Irrigation scheme; flow-cum-storage; ayacut 60,000 acres

**3. Source of supply**

Gondori at Ambalga and Benithora at Lingawadgi and Kansur/Bhima/Krishna

**4. Description of the reservoir or tank**

Three reservoirs, only following particulars are available

<i>Site</i>	<i>Catchment area (Square miles)</i>	<i>Length of spillway (Feet)</i>	<i>Length of masonry dam (Feet)</i>	<i>Length of earthen dam (Feet)</i>
Lingawadi	527	1,900	600	4,000
Kansur site	361	3,100	400	5,500
Ambalga site	102	600	200	4,200

**5. Not available****6. Description of the canals**

Lingawadi Right Bank Canal (contour); 44 miles long; unlined; perennial; authorised capacity 215 cusecs.

Lingawadi Left Bank Canal (contour); 12 miles long; unlined; perennial; authorised capacity 35 cusecs.

Ambalga Left Bank Canal (contour); 13 miles long; unlined; perennial; authorised capacity 42 cusecs.

Kansur Right Bank Canal (contour); 18 miles long; unlined; perennial; authorised capacity 136 cusecs.

Kansur Left Bank Canal (contour); 14 miles long; unlined; perennial; authorised capacity 70 cusecs.

**7. (a) Nature of investigations carried out up-to-date**

Surveys for dam sites have been completed and surveys of the canals are in progress

**(b) Actual or probable date of beginning of construction**

IV Plan

## 8. Probable date of beginning of operation

4th Year from beginning of construction

## IRRIGATION ASPECTS

## 9. Gross commanded area, Culturable commanded area and Ayacut, district-wise

## District Gulbarga

	<i>Lingwadi reservoir</i>		<i>Kansur resevoir</i>		<i>Ambalga L.B. Canal</i>	<i>Total</i>
	<i>L.B. Canal</i>	<i>R.B. Canal</i>	<i>L.R. Canal</i>	<i>R.B. Canal</i>		
<i>..... thousand acres .....</i>						
<b>G.C.A.:</b>	6.8	43.2	14.0	27.7	8.3	100.0
<b>C.C.A.</b>	5.1	32.4	10.5	20.8	6.4	75.2
<b>Ayacut</b>	4.1	25.9	8.4	16.6	5.0	60.0

## 10. Area proposed to be irrigated annually and intensity of irrigation

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation</i>
Perennial	6,000 acres	10.0 percent
Kharif	39,000 "	65.0 "
Rabi	15,000 "	25.0 "
Total	60,000 "	100.0 "

## 11. Normal rainfall and river supply proposed to be diverted

(a) Ambalga Left Bank Canal

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
1	2	3	4	4	6
	<i>..... inches .....</i>			<i>..... T.M.C. ....</i>	
June	4.6	7.6	1.5	0.06	0.55
July	5.5	9.2	6.1	0.11	0.98
August	4.8	17.4	1.4	0.11	0.98
September	7.0	11.2	3.8	0.11	1.01
October	2.6	6.6	0.6	0.09	0.80
November	1.2	2.5	Nil	0.07	0.64
December	0.2	1.2	"	0.05	0.44
January	0.2	0.3	"	0.05	0.44
February	0.3	0.4	"	0.04	0.39
March	0.3	1.7	0.3	0.02	0.18
April	0.8	1.3	0.1	0.01	0.07
May	0.8	4.5	0.5	0.01	0.09
Total	2.82			0.73	



## (b) Lingawadi Right Bank and Left Bank Canals

Month	Rainfall			River supply proposed to be diverted		Capacity factor for both Canals
	Normal	Maximum	Minimum	Right Bank Canal	Left Bank Canal	
	..... inches .....			..... T. M. C. ....		
June	4.0	7.6	1.5	0.32	0.05	0.57
July	5.3	9.2	6.1	0.57	0.09	0.99
August	5.0	17.4	1.4	0.58	0.09	1.00
September	7.0	11.2	3.8	0.55	0.09	0.99
October	2.6	6.6	0.6	0.47	0.08	0.82
November	1.1	2.5	Nil	0.37	0.06	0.66
December	0.2	1.2	"	0.24	0.04	0.42
January	0.2	Nil	"	0.24	0.04	0.42
February	0.3	"	"	0.22	0.04	0.43
March	0.3	1.7	0.3	0.09	0.02	0.16
April	0.9	1.3	0.1	0.06	0.01	0.11
May	1.0	4.5	0.5	0.05	0.01	0.08
<b>Total</b>	<b>27.9</b>			<b>3.76</b>	<b>0.62</b>	

## 11. Kansur Right Bank and Left Bank Canals

Month	Rainfall			River supply proposed to be diverted		Capacity factor
	Normal	Maximum	Minimum	Right Bank Canal	Left Bank Canal	
	2	3	4	5		
.....inches.....			.....T.M.C.....			
June	4.5	7.6	1.5	0.21	0.10	0.58
July	5.5	9.2	6.1	0.37	0.18	1.00
August	4.8	17.4	1.4	0.37	0.18	1.00
September	7.0	11.2	3.8	0.35	0.18	0.99
October	2.6	6.6	0.6	0.30	0.15	0.83
November	1.2	2.5	Nil	0.23	0.12	0.65
December	0.2	1.2	"	0.15	0.08	0.42
January	0.2	0.3	"	0.15	0.08	0.42
February	0.3	0.4	"	0.04	0.07	0.42
March	0.3	1.7	0.3	0.06	0.03	0.16
April	0.8	1.3	0.1	0.03	0.02	0.09
May	0.8	4.5	0.5	0.03	0.02	0.09
Total	28.2			2.39	1.22	

Total diversion for all five canals

8.72 T.M.C.

12. Not available

13. (a) Characteristics of soils in the commanded area

Soils are either deep black or of lateritic origin. The former contain concretionary trap stones and lime nodules, are clayey and of high base status. The lateritic soils are bright red to pale red and range from sandy to sandy loam in texture.

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif					Rabi				Total crop- ped (area cT. ares)
Percentage of principal crops				Total area (T. acres)	Percentage of principal crops			Total area (T. ares)	
paddy and others	Jowar	Groundnut	Bajra		Jowar	Wheat	Pulses & others		
5.0	10.0	11.0	6.0	19.2	34.0	3.0	31.0	40.8	60.0

15. (a) Proposed pattern of irrigated cultivation

Perennial		Kharif			Rabi			Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
Sugarcane		Paddy	Jowar & Oilseeds		Wheat	Cotton		
10.0	6.0	22.0	43.0	39.0	20.0	5.0	15.0	60.0

(b) Are there any rules for regulating crop pattern?

Legislation under consideration

16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)				Delta (feet)				
Perennial	Kharif		Rabi	Perennial	Kharif		Rabi	Overall
	Paddy	Others			Paddy	Others		
75	55	150	120	8.0	5.5	1.8	2.0	3.3

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

2 tanks, irrigating 71 acres excluded from Ayacut

(b) Number of wells in operation in the area proposed to be irrigated

140 wells, irrigating 670 acres, excluded from Ayacut

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

#### GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by the reservoir

Submergence wholly in Mysore, particulars not available.

24 to 26. Not available

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture .



# UPPER TUNGABHADRA PROJECT

600.3-K.8-My.17

1. **Name of State** Mysore (formerly in Mysore, Bombay and Hyderabad)
2. **Scope of the scheme or system**  
Irrigation scheme ; flow ; ayacut 210,000 acres
3. **Source of supply**  
Tungabhadra near Honnali/Krishna  
Irrigation uses upstream, both existing and proposed
4. Not applicable
5. **Description of the headworks**  
Barrage ; other particulars not available
6. **Description of the canal**  
Left Bank Canal (contour) ; 164 miles long; lined; perennial; authorised capacity 1,850 cusecs
7. (a) **Nature of investigations carried out up-to-date**  
Only preliminary investigations made  
(b) **Actual or probable date of beginning of construction** IV Plan
8. **Probable date of begining of operation**  
4th year from begining of construction

## IRRIGATION ASPECTS

### 9. Gross commanded area, Culturable commanded area and Ayacut, district-wise

Item	Name of district			Total
	Shimoga	Dharwar	Raichur	
	.....thousand acres.....			
G. C. A.	36.0	237.0	77.0	350.0
C. C. A.	27.0	177.8	57.7	262.5
Ayacut	21.6	142.2	46.2	210.0

### 10. Area proposed to be irrigated annually and Intensity of Irrigation (both canals)

	Area proposed to be irrigated	Intensity of irrigation
Perennial	21,000 acres	10.0 percent
Khariif	115,500 „	55.0 „
Rabi	73,500 „	35.0 „
Total	210,000 „	100.0 „

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	.....— inches.....			.....T.M.C.....	
June	3.8	5.4	1.3	2.51	0.52
July	6.8	11.0	4.4	4.43	0.89
August	4.3	7.4	1.8	4.43	0.89
September	4.4	5.4	1.1	4.29	0.89
October	4.6	10.4	2.6	3.85	0.78
November	1.7	4.1	Nil	3.55	0.74
December	0.4	1.5	„	2.39	0.48
January	0.1	0.4	„	2.39	0.48
February	0.9	1.9	„	2.16	0.48
March	0.2	0.9	„	0.75	0.15
April	1.4	3.6	0.5	0.36	0.07
May	2.6	7.1	0.6	0.36	0.07
Total	31.2			31.47	

12. Not available

13. (a) Characteristics of soils in the commanded area

Black, shallow to deep with lime nodules ; also sandy loam

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ? No

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif			Rabi					Total cropped (T. acres)
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops				Total area (T. acres)	
Jowar	Groundnut		Pulses and Others	Jowar	Wheat	Cotton		
14.0	10.0	50.4	29.0	16.0	6.0	25.0	159.6	210.0

**15. (a) Proposed pattern of irrigated cultivation**

Perennial		Kharif		Total area (T. acres)	continued below
Percentage of principal crops	Total area (T.acres)	Percentage of principal crops			
Sugarcane		Paddy	Others		
10	21.0	25	30	115.5	

Rabi			Grand Total (T. acres)
Percentage of principal crops		Total area (T. acres)	
Jowar & Pulses	Wheat		
25	10	73.5	210.0

continued from above

**(b) Are there any rules for regulating crop pattern ?**

Legislation under consideration

**16. Duty and Delta at canal head (as anticipated)**

<i>Duty (acres per mean cusec)</i>				<i>Delta (feet)</i>				
<i>Perennial</i>	<i>Kharif</i>		<i>Rabi</i>	<i>Perennial</i>	<i>Kharif</i>		<i>Rabi</i>	<i>Overall</i>
	<i>Paddy</i>	<i>Others</i>			<i>Paddy</i>	<i>Others</i>		
75	55	150	120	8.9	5.5	1.8	2.0	3.4

17. Not available

**18. Quantum of river supplies available in relation to withdrawals**

The adequacy or otherwise of river supplies for this project would be governed by the requirements of an integrated basin wide plan

19. to 21. Not applicable

**GENERAL****22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

23 to 26. Not available

27. Not applicable

**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

**TUNGA RESERVOIR PROJECT**

61C.8-K.8-My. 18

1. **Name of State** Mysore (formerly in Bombay, Hyderabad and Mysore)
2. **Scope of the scheme or system**  
Irrigation scheme ; flow-cum-storage ; additional Ayacut 250,000 acres
3. **Source of supply**  
Tunga at Tirthahalli and Sacrebyle/Tungabhadra/Krishna  
Utilisation upstream : minor tanks
4. **Reservoir at Tirthahalli ; other particulars not available**
5. **Description of the headworks**  
Same as under Tunga Anicut Project (12B-K.8-My.4) ;  
Other particulars not available
6. **Description of the canals**  
Existing Tunga Left Bank Canal ; to be remoddled to the following data : contour ;  
240 miles long ; perennial ; unlined ; authorised capacity 2,200 cusecs
7. (a) **Nature of investigations carried out up-to-date**  
Field investigations not yet undertaken, present proposals based on topo-sheet studies  
(b) **Actual or probable date of beginning of construction**  
IV Plan
8. **Not available**

**IRRIGATION ASPECTS****9. Gross commanded area, Culturable commanded area and Ayacut district-wise**

Item	Name of district			Total
	Shimoga	Dharwar	Raichur	
	.....thousand acres.....			
G.C.A.	33.6	260.4	126.0	420.0
C.C.A.	25.0	193.8	93.7	312.5
Ayacut	20.0	155.0	75.0	250.0

**10 Area proposed to be irrigated annually and intensity of irrigation**

	<i>Area proposed to be irrigated</i>		<i>Intensity of irrigation</i>	
(i) Perennial	25,000	acres	10.0	percent
(ii) <i>Kharif</i>	137,500	„	55.0	„
(iii) <i>Rabi</i>	87,500	„	35.0	„
Total	250,000	„	100.0	„

**11. Normal rainfall and river supply proposed to be diverted**

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
	<i>.....inches.....</i>			<i>.....T.M.C.....</i>	
June	3.8	5.4	1.3	2.98	0.52
July	6.8	11.0	4.4	5.27	0.89
August	4.3	7.4	1.8	5.27	0.89
September	4.4	5.4	1.1	5.10	0.89
October	4.6	10.4	2.6	4.58	0.78
November	1.7	4.1	Nil	4.22	0.74
December	0.4	1.5	„	2.84	0.48
January	0.1	0.4	„	2.84	0.48
February	0.9	1.8	„	2.56	0.48
March	0.2	0.9	„	0.89	0.15
April	1.4	3.6	0.5	0.48	0.08
May	2.6	7.1	0.6	0.43	0.07
<b>Total</b>	<b>31.2</b>			<b>37.41</b>	

12: Not available

**13. (a) Characteristics of soils in the commanded area**

Black soils shallow to deep with lime nodules, also red sandy loams pale yellowish to bright red in colour

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No



**14. Existing pattern of cultivation in the areas proposed to be irrigated**

<i>Kharif</i>		<i>Total areas (T. acres)</i>	<i>Rabi</i>				<i>Total area (T. acres)</i>	<i>Total cropped area (T. acres)</i>
<i>Percentage of principal crops</i>			<i>Percentage of principal crops</i>					
<i>Jowar</i>	<i>Groundnut</i>		<i>Jowar</i>	<i>Wheat</i>	<i>Cotton</i>	<i>Others</i>		
14.0	10.0	60.0	16.0	6.0	25.0	29.0	190.0	250.0

**15. (a) Proposed pattern of irrigated cultivation**

<i>Perennial</i>	<i>Total area (T. acres)</i>	<i>Kharif</i>		<i>Total area (T. acres)</i>	<i>Rabi</i>		<i>Total area (T. acres)</i>	<i>Grand Total (T. acres)</i>
<i>Percentage of principal crops</i>		<i>Percentage of principal crops</i>			<i>Percentage of principal crops</i>			
<i>Sugarcane</i>		<i>Paddy</i>	<i>others</i>		<i>Wheat</i>	<i>Jowar &amp; Pulses</i>		
10.0	25.0	25.0	30.0	137.5	10.0	25.0	87.5	250.0

**(b) Are there any rules for regulating crop pattern ?**

Legislation under consideration

**16. Duty and Delta at canal head (as anticipated)**

Duty (acres per mean cusec)				Delta (feet)				
Perennial	Kharif		Rabi	Perennial	Kharif		Rabi	Overall
	Paddy	Others			Paddy	Others		
75	55	150	120	8.9	5.5	1.8	2.0	3.4

**17. Not available****18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**19 to 21. Not applicable****GENERAL****22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

**23 to 26. Not available****27. Not available****28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

# **EXTENSION AND REMODELLING OF BHADRA ANICUT CHANNELS    620. 3-K.8-My.19**

1. **Name of State** **Mysore**
2. **Scope of the scheme or system**  
Irrigation scheme; based on flow, additional Ayacut 8,500 acres
3. **Source of supply**  
Bhadra River at Gondi/Tungabadra/Krishna  
Irrigation uses upstream 57 T.M.C.
4. Not applicable
5. **Description of the head-works**  
Same as under 20A-K.8-My.2
6. **Description of the canals**  
Left Bank Canal to be remodelled to the following data : perennial; unlined, authorised capacity 200 cusecs  
Right Bank Canal : Same as under 20A-K.8-My.2
7. (a) **Nature of investigations carried out up-to-date**  
Project report ready  
(b) Not available
8. **Probable date of beginning of operation**  
4 years after beginning of construction

## **IRRIGATION ASPECTS**

### **9. Gross commanded area, Culturable commanded area and Ayacut, district-wise**

District Shimoga

	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>	<i>Total</i>
	<i>.....thousand acres.....</i>		
G. C. A.	12.0	13.0	25.0
C. C. A.	10.0	11.8	21.8
Ayacut	9.0	11.8	20.8
Deduct existing Ayacut under Bhadra anicut channels	0.5	11.8	12.3
Additional Ayacut	8.5	(—)	8.5

## 10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated			Intensity of irrigation	
	Left Bank Canal	Right Bank Canal	Total	Left Bank Canal	Right Bank Canal
	.....thousand acres.....			.....percentage.....	
Perennial	3.0	5.0	8.0	33.3	42.3
Khari <sup>2</sup>	6.0	6.8	12.8	66.7	57.6
Rabi	1.2	1.8	3.0	13.3	15.3
<b>Total</b>	<b>10.2</b>	<b>13.6</b>	<b>23.8</b>	<b>113.3</b>	<b>115.3</b>
Existing irrigation			10.2		
Additional irrigation			13.6		

## 11. Normal rainfall and river supply proposed to be diverted

Month	Rainfall			River supply proposed to be diverted		Capacity factor	
	Normal	Maximum	Minimum	Left Bank canal	Right Bank canal	Left Bank canal	Right Bank canal
1	2	3	4	5	6	7	8
	.....inches.....			.....T.M.C.....			
June	6.6	7.9	1.9	0.19	0.38	0.37	0.55
July	11.5	17.1	5.3	0.48	0.59	0.90	0.83
August	6.6	11.9	2.4	0.48	0.59	0.93	0.83
September	3.9	6.3	1.4	0.46	0.58	0.89	0.84
October	4.6	11.3	4.1	0.48	0.59	0.90	0.83
November	1.8	5.6	0.2	0.30	0.38	0.58	0.55
December	0.3	1.7	0.3	0.22	0.28	0.41	0.39
January	0.1	1.1	0.1	0.22	0.34	0.41	0.48
February	0.1	0.1	0.1	0.19	0.32	0.39	0.50
March	0.3	1.2	0.8	0.21	0.35	0.39	0.49
April	1.9	5.5	0.1	0.06	1.10	0.12	0.15
May	2.9	8.7	3.2	0.06	1.11	0.12	0.15
<b>Total</b>	<b>40.6</b>			<b>3.35</b>	<b>4.61</b>		

Total diversion by both canals 7.96 T.M.C.  
Deduct diversion as under 20A-K, 8-My. 2 3.20 T.M.C.  
Additional diversion 4.76 T.M.C.

## 12. Not available

## 13. (a) Characteristics of soils in the commanded area

Sandy loamy soil

## 14. Not available

## 15. (a) Proposed pattern of irrigated cultivation

<i>Perennial</i>		<i>Abi</i>		<i>Tabi</i>		<i>Grand Total (T. acres)</i>
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>	<i>Total area (T. acre)</i>	
<i>Sugarcane</i>		<i>Paddy</i>		<i>Paddy</i>		
33.6	8.0	53.8	12.8	12.6	3.0	23.8

## 16. Duty and Delta at canal head (as anticipated)

<i>Duty (acres per mean cusec)</i>			<i>Delta (feet)</i>			
<i>Perennial</i>	<i>Abi</i>	<i>Tabi</i>	<i>Perennial</i>	<i>Abi</i>	<i>Tabi</i>	<i>Overall</i>
<i>Sugarcane</i>	<i>Paddy</i>	<i>Paddy</i>				
65	45	35	10.0	6.7	8.3	7.7

## 17. (a) Not available

## (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

## 18. Quantum of river supplies available in relation to withdrawals

River supply are adequate to meet project requirements

## 19 to 21. Not applicable

## GENERAL

## 22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

## 23. Extent and type of area submerged by reservoir

Nil

## 24. Total cost of the scheme

Rs. 60.6 lakhs

## 25. Financial return of the scheme

3.19 percent

## 26. Cost per acres irrigated

Rs. 674

## 27. Not applicable

## 28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

## MADAGMASUR SCHEME

63C.3-K.8-My.21

**1. Name of State**

Mysore (formerly in Bombay)

**2. Scope of the scheme or system**

Irrigation scheme ; flow-cum-storage ; Ayacut 24,100 acres

**3. Source of supply**

Kumadvati at Masur/Tungabhadra/Krishna

**4. Description of the reservoir or tank**

Catchment area 540 square miles; other particulars not available

**5. Description of the headworks**

Dam : earthen, 1,850 feet long, 143 feet high

Spillway : 157 feet to be increased to 397 feet and to be provided with 15 feet high automatic falling shutters, capacity 57,000 cusecs

Outlet : right side, 1 vent 8 feet x 4.5 feet

**6. Description of the canals**

Left Bank Canal (off taking from the right bank canal and crosses over to be left bank by an aqueduct); contour; 23 miles long; two seasonal, unlined; authorised capacity 30 cusecs

Right Bank Canal (contour); 24 miles long; two seasonal; unlined; authorised capacity 115 cusecs

**7. (a) Nature of investigations carried out up-to-date**

Investigations have been completed and the project report is under preparation

**(b) Actual or probable date of beginning of construction**

IV Plan

**8. Probable date of beginning of operation**

3rd year from beginning of construction

## IRRIGATION ASPECTS

## 9. Gross commanded area, Culturable commanded area and Ayacut, district-wise

<i>District Dharwar</i>			
	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>	<i>Total</i>
	<i>.....thousand acres.....</i>		
G. C. A.	9.8	30.3	40.1
C. C. A.	7.4	22.7	30.1
Ayacut	5.9	18.2	24.1

## 10. Area proposed to be irrigated annully and intensity of irrigation (both canals)

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation</i>
<i>Kharif</i>	15,900 acres	66.0 percent
<i>Rabi</i>	8,200 „	34.0 „
<b>Total</b>	<b>24,100 „</b>	<b>100.0 „</b>

## 11. Normal rainfall and river supply proposed to be diverted

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>		<i>Capacity factor</i>	
	<i>Normal</i>	<i>Maxi- mum</i>	<i>Mini- mum</i>	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>	<i>Left Bank Canal</i>	<i>Right Bank Canal</i>
	<i>.....inches.....</i>			<i>..... T.M.C. ....</i>			
June	3.0	5.0	0.4	0.10	0.03	0.34	0.39
July	3.5	6.4	1.8	0.22	0.07	0.71	0.87
August	3.5	5.3	1.1	0.22	0.07	0.71	0.87
September	4.0	7.3	0.8	0.21	0.07	0.79	0.90
October	4.3	9.3	2.0	0.10	0.03	0.32	0.37
November	1.7	6.1	Nil	0.14	0.04	0.47	0.51
December	0.4	1.2	„	0.14	0.05	0.45	0.62
January	0.1	0.4	„	0.14	0.05	0.45	0.62
February	0.1	0.6	„	0.13	0.04	0.47	0.55
March	0.2	0.3	„	Nil	Nil	—	—
April	1.3	2.8	„	„	„	—	—
May	2.5	5.1	0.2	„	„	—	—
<b>Total</b>	<b>24.6</b>			<b>1.40</b>	<b>0.45</b>		

Total diversion by both canals

1.85 T.M.C.

## 12. Not available

## 13. (a) Characteristics of soils in the commanded area

Red Sandy loams, generally shallow or of medium depth, underlain with disintegrated rock or *murrum*

## (b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

## 14. Existing pattern of cultivation in the areas proposed to be irrigated

Kharif				Rabi					Total cropped area (T. acres)
Percentage of principal crops			Total area (T. acres)	Percentage of principal crops				Total area (T. acres)	
Paddy	Jowar	Groundnut		Jowar	Wheat	Cotton	Others		
7.0	14.0	8.0	7.0	15.0	9.0	24.0	23.0	17.1	24.1

## 15. (a) Proposed pattern of irrigated cultivation

Kharif		Rabi			Total area (T. acres)	Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops				
		Jowar & pulses	Wheat	Cotton		
Jowar, oilseeds etc.						
66.0	15.9	24.0	5.0	5.0	8.2	24.1

## (b) Are there any rules for regulating crop pattern?

Legislation under consideration

## 16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)		Delta (feet)		
Kharif and Others	Rabi	Kharif and Others	Rabi	Overall
150	120	1.8	2.0	1.8

## 17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

6 tanks; irrigating 426 acres; excluded from Ayacut

## (b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

51 wells; irrigating 40 acres, excluded from Ayacut

## 18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

# GENERAL

22. Aspects of other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

Total submergence is 1,443 acres all in Mysore; (garden lands 598 acres, dry lands 666 acres, and wet lands 179 acres)

24. Total cost of the scheme

Rs. 1,10.50 lakhs

25. Financial return of the scheme

3.46 percent

26. Cost per acre irrigated

Rs. 459/-

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture





# VARADA SCHEME

64C.3-K.8-My.22

1. Name of State Mysore (formerly partly in Bombay and partly in Mysore)

2. Scope of the scheme or system

Irrigation scheme ; flow-cum-storage ; Ayacut 20,000 acres

3. Source of supply

(i) Headgonhalla near Chikkangudu (storage) and

(ii) Varada near Segehalli (Pick-up-weir)/Tungabhadra/Krishna

Description of the reservoir or tank

4-5. Catchment area above dam site 70 square miles, at pick-up-weir 1,074 square miles ; other particulars not available

6. Description of the canals

Right Bank Canal (contour) ; length not yet determined ; unlined ; perennial ; authorised capacity 130 cusecs

Left Bank Canal (contour) ; length not yet determined ; unlined ; perennial ; authorised capacity 105 cusecs

7. (a) Nature of investigations carried out up-to-date

Field investigation have yet to be undertaken, present proposal based on topo-sheet studies

(b) Actual or probable date of beginning of construction

IV Plan

8. Probable date of beginning of operation

3rd year from beginning of construction

## IRRIGATION ASPECTS

9: Gross commanded area, Culturable commanded area and Ayacut, district-wise

District Darwar

	Right Bank Canal	Left Bank Canal	Total
	thousand	acres	
G.C.A.	18.3	15.0	93.3
C.C.A.	13.7	11.3	25.0
Ayacut	11.0	9.0	20.0

**10. Area proposed to be irrigated annually and intensity of irrigation (both canals)**

	<i>Area proposed to be irrigated</i>	<i>Intensity of irrigation</i>
Perennial	2,000 acres	10.0 percent
<i>Kharif</i>	12,000 „	60.0 „
<i>Rabi</i>	6,000 „	30.0 „
<b>Total</b>	<b>20,000 „</b>	<b>100.0 „</b>

**11. Normal rainfall and river supply proposed to be diverted**

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>		<i>Capacity factor</i>	
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>	<i>R.B. Canal</i>	<i>L.B. Canal</i>	<i>R.B. Canal</i>	<i>L.B. Canal</i>
	<i>.....inches.....</i>			<i>.....T.M.C.....</i>			
June	4.0	7.2	2.0	0.16	0.13	0.47	0.48
July	7.5	13.1	4.3	0.30	0.24	0.86	0.85
August	3.8	8.6	3.2	0.30	0.24	0.86	0.85
September	4.5	6.2	1.3	0.29	0.23	0.86	0.85
October	4.5	14.8	0.4	0.28	0.23	0.80	0.82
November	1.7	6.6	Nil	0.22	0.18	0.65	0.66
December	1.3	1.7	„	0.12	0.09	0.34	0.32
January	0.1	0.2	„	0.12	0.09	0.34	0.32
February	0.1	0.6	„	0.11	0.09	0.35	0.35
March	0.2	1.2	„	0.04	0.03	0.11	0.11
April	1.5	4.0	„	0.02	0.02	0.06	0.07
May	2.5	6.5	„	0.02	0.02	0.06	0.07
<b>Total</b>	<b>31.7</b>			<b>1.98</b>	<b>1.59</b>		

Total diversion by both canals **3.57 T.M.C.**

**12. Not available****13. (a) Characteristics of soils in the commanded area**

Of lateritic origin

- (b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

**14. Existing pattern of cultivation in the areas proposed to be irrigated**

Kharif				Rabi					Total cropped area (T. acres)
Percentage of principal crops			Total area(T. acres)	Percentage of principal crops				Total area(T. acres)	
Paddy	Jowar	Groundnut		Jowar	Wh eat	Cotton	Others		
7.0	14.0	8.0	5.8	15.0	9.0	24.0	23.0	14.2	20.0

**15 (a) Proposed pattern of irrigated cultivation**

Perennial		Kharif			Rabi			Grand Total (T. acres)
Percentage of principal crops	Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	
		Paddy	Jowar, oil- seeds etc.		Jowar & pulses	Wheat		
Sugarcane								
10.0	2.0	40.0	20.0	12.0	20.0	10.0	6.0	20.0

**(b) Are there any rules for regulating crop pattern ?**

Legislation under consideration

**16. Duty and Delta at canal head (as anticipated)**

Duty (acres per mean cusec)				Delta (feet)				
Perennial	Kharif		Rabi	Perennial	Kharif		Rabi	Overall
	Paddy	Others			Paddy	Others		
75	55	150	120	8.9	5.5	1.8	2.0	4.1

**17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

8 Tanks ; irrigating 810 acres, excluded from Ayacut

**(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

42 wells, irrigating 95 acres, excluded from Ayacut

**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**19. to 21.**

Not applicable

## GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

- 23 to 26.** Not available

- 27.** Not applicable

- ## 28. Main features and purpose of the scheme

### Conversion of rain-fed cultivation to irrigated agriculture



सत्यमेव जयते

**DANDAVATHI RESERVOIR PROJECT**

65C.3-K.8-My.23

1. Name of State Mysore
2. Scope of the scheme or system  
Irrigation scheme; flow-cum-storage; Ayacut 8,000 acres
3. Source of supply  
Dandavathi near Kuppagadda/Tungabhadra/Krishna  
Utilisation upstream :  
existing : Nil  
proposed : Nil
- 4-5. Catchment area 184 square miles, other particulars not available
6. Description of the canals  
Right Bank Canal (contour); 10 miles long; perennial; unlined; authorised capacity 140 cusecs
7. (a) Nature of investigations carried out up-to-date  
Field investigation not yet undertaken, present proposal based on toposheet studies  
(b) Actual or probable date of beginning of construction  
IV Plan
8. Probable date of beginning of operation  
3rd year from beginning of construction

**IRRIGATION ASPECTS**

9. Gross commanded area, Culturable commanded area and Ayacut, district-wise

District	Shimoga
G.C.A.	13,300 acres
C.C.A.	10,000 „
Ayacut	8,000 „

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	Intensity of irrigation
Perennial	1,200 acres	15.0 percent
Kharij	6,800 „	85.0 „
Total	8,000 „	100.0 „

**11. Normal rainfall and river supply proposed to be diverted**

<i>Month</i>	<i>Rainfall</i>			<i>River supply proposed to be diverted</i>	<i>Capacity factor</i>
	<i>Normal</i>	<i>Maximum</i>	<i>Minimum</i>		
	<i>.....inches.....</i>			<i>T.M.C.</i>	
June	11.3	20.7	6.4	0.20	0.55
July	25.0	38.8	13.4	0.37	0.99
August	12.5	27.2	5.2	0.37	0.99
September	5.0	9.7	1.0	0.36	0.99
October	5.3	8.2	0.5	0.37	0.99
November	1.7	3.5	Nil	0.20	0.55
December	0.4	1.8	„	0.04	0.11
January	0.1	0.2	„	0.04	0.11
February	0.1	0.1	„	0.04	0.12
March	0.2	0.4	„	0.04	0.11
April	1.5	3.6	„	0.02	0.06
May	2.3	4.4	„	0.02	0.06
<b>Total</b>	<b>65.4</b>			<b>2.07</b>	

**12. Not available****13. (a) Characteristics of soils in the commanded area**

Lateritic origin and shallow to medium red sandy loam also exist in the area

**(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?**

No

**14. Existing pattern of cultivation in the area proposed to be irrigated**

<i>Perennial</i>		<i>Kharif</i>				<i>Rabi</i>			<i>Total cropped area</i>
<i>Percentage of principal crops</i>	<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>			<i>Total area (T. acres)</i>	<i>Percentage of principal crops</i>		<i>Total area (T. acres)</i>	
<i>Sugarcane</i>		<i>Paddy</i>	<i>Ragi</i>	<i>Ground nut</i>		<i>Jowar</i>	<i>Pulses etc.</i>		
1.0	0.8	45.0	13.0	5.0	5.1	11.0	25.0	2.1	8.0

**15. (a) Proposed pattern of irrigated cultivation**

<i>Perennial</i>		<i>Kharif</i>		<i>Grand total (T. acres)</i>
<i>Percentage of principal crops Sugarcane</i>	<i>Total area T. acres)</i>	<i>Percentage of principal crops Paddy</i>	<i>Total area (T. acres)</i>	
15.0	1.2	85.0	6.8	8.0

**(b) Are there any rules for regulating crop pattern ?**

Legislation under consideration

**16. Duty and Delta at canal head (as anticipated)**

<i>Duty (acres per mean cusec)</i>		<i>Delta (feet)</i>		
<i>Perennial</i>	<i>Kharif Paddy</i>	<i>Perennial</i>	<i>Kharif Paddy</i>	<i>Overall</i>
75	55	8.9	5.5	5.9

**17.** Not available**18. Quantum of river supplies available in relation to withdrawals**

River supply data not available

**19. to 21.** Not applicable**GENERAL****22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

**23 to 26.,** Not available**27.** Not applicable**28. Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

TABLE I

Particulars of major and medium schemes referred to in III Plan  
but not yet approved for execution

<i>Index number</i>	<i>Name of scheme</i>	<i>Proposed power installed K.W.</i>	<i>C.O.A. or Ayacut (acres)</i>	<i>Area proposed to be irrigated (acres)</i>	<i>Proposed annual diversion (T.M.C.)</i>
1	2	3	4	5	6

## SCHEMES INCLUDED IN III PLAN

## ANDHRA PRADESH

Ayacut

1C.2-K.7-A.1	Srisaillam Hydro-electric Project	330,000	—	220,000	41.3	243.3
2C.2-K.7-A.2	Nagarjunasagar Hydro-electric Project	100,000	—	—	128.8/149.1	
3C.2-K.6-A.3	Kotepalli Project	—	7,800	8,700	1.7	
4C.2-K.7-A.4	Varadarajaswamy Project	—	2,500	5,400	0.9	
5C.2-K.12-A.5	Lankasagar Project	—	5,100	5,100	0.8	
	<b>Total</b>	<b>430,000</b>	<b>15,400</b>	<b>239,200</b>	<b>44.7</b>	<b>362.1</b>
						<b>392.4</b>

## MAHARASHTRA

C.C.A.

6C.2-K.1-M.1	Koyna Irrigation Scheme Stage I	—	112,800	104,200	29.4	
7C.2-K.1-M.2	Warna Project	—	25,000	20,000	3.9	
8C.2-K.5-M.3	Bhima Lift Irrigation Project—Stage I	—	142,400	100,000	15.4	
9C.2-K.6-M.4	Kurnoor Project	—	20,000	15,000	2.3	
	<b>Total</b>		<b>300,200</b>	<b>239,200</b>	<b>51.0</b>	

## MYSORE

Ayacut

10C.2-K.4-My.1	Malaprabha Irrigation Scheme	—	300,000	300,000	30.9	
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<i>Index number</i>	<i>Name of scheme</i>	<i>Proposed power installed K.W.</i>	<i>C.C.A. or Ayacut (acres)</i>	<i>Area proposed to be irrigated (acres)</i>	<i>Proposed annual diversion (T.M.C.)</i>
1	2	3	4	5	6

**SCHEMES UNDER CONSIDERATION FOR INCLUSION IN III PLAN  
MYSORE**

<b>110.2-K.2-My.2</b>	<b>Upper Krishna Project</b>				
	Stage I	—	530,000	533,000	92.5

**SCHEMES ON WHICH A VIEW HAS YET TO BE TAKEN REGARDING THEIR INCLUSION  
IN III PLAN**

**ANDHRA PRADESH**

<b>120.2-K.7-A.6</b>	<b>Vaikuntapuram Pumping Scheme</b>	—	17,000	17,000	2.8
<b>130.2-K.8-A.7</b>	<b>Gazuladinni Project</b>	—	11,500	11,500	1.8
<b>140.2-K.12-A.8</b>	<b>Akheru Project</b>	—	6,500	6,500	1.3
	<b>Total</b>		<b>35,000</b>	<b>35,000</b>	<b>5.7</b>

**MAHARASHTRA**

<b>150.2-K.1-M.5</b>	<b>Tulshi Project</b>	—	14,400	9,700	2.9
<b>160.2-K.5-M.6</b>	<b>Kukdi Project—Stage I</b>	—	129,700	122,800	17.4
	<b>Total</b>		<b>144,100</b>	<b>132,500</b>	<b>20.3</b>
	<b>Grand Total</b>	<b>480,000</b>	<b>1,327,700</b>	<b>1,478,900</b>	<b>245.1</b>

*362.1*  
*392.4*

*Note :—Figures in italics represent diversion for power generation only*

TABLE II

Particulars of proposed major and medium projects not included in III Plan

<i>Index Number</i>	<i>Name of Scheme</i>	<i>Proposed power installed (kW)</i>	<i>C.C.A. or Ayacut (acres)</i>	<i>Proposed annual irrigation (acres)</i>	<i>Proposed annual diversion (T.M.C.)</i>
1	2	3	4	5	6
<b>ANDHRA PRADESH</b>			<i>Ayacut</i>		
<b>10.3-K.2-A.1</b>	Upper Krishna Project (Extension to Andhra Pradesh)	—	150,000	180,000	54.4
<b>20.3-K.7-A.2</b>	Sangameshwaram Canal Scheme	—	358,500	358,500	40.9
<b>30.3-K.7-A.3</b>	Sangameshwaram Canal Scheme—Stage II	—	720,000	720,000	120.0
<b>40.3-K.7-A.4</b>	Nagarjunasagar Project Stage II	740,000	1,326,000	1,226,000	144.9
<b>50.3-K.7-A.5</b>	Pulichintala Project	120,000	391,000	391,000	73.0
<b>60.3-K.7-A.6</b>	Nagarjunasagar Stage III	—	333,000	2,013,000	595.2
<b>70.3-K.6-A.7</b>	Bhima Project	—	400,000	400,000	100.7
<b>80.3-K.7-A.8</b>	Okachettuvagu Project	—	5,500	6,700	1.9
<b>90.3-K.9-A.9</b>	Tungabhadra Project Left Bank Low Level Canal Extension (into Andhra Pradesh)	—	120,000	120,000	19.2
<b>100.3-K.8-A.10/My.20</b>	Tungabhadra High Level Canal—Stage II (jointly with Mysore)	—	198,600	198,600	21.2
<b>110.3-K.8-A.11</b>	Tungabhadra High Level Canal Power Scheme	50,000	—	—	—
<b>120.3-K.8-A.12</b>	Rajolibanda Right Canal Scheme	—	40,000	40,000	12.9
<b>130.3-K.12-A.13</b>	Muneru Project	—	7,500	7,500	1.5
<b>140.3-K.12-A.14</b>	Kalikota Project	—	13,000	17,000	3.5
<b>Total</b>		<b>910,000</b>	<b>4,063,100</b>	<b>5,678,300</b>	<b>1,189.8</b>
					<i>735.8</i> <i>420.7</i>

Note :—*Figures in italics are diversions for power generation only*

TABLE II (Contd.)

<i>Index Number</i>	<i>Name of Scheme</i>	<i>Proposed power installed (k.W.)</i>	<i>C.C.A. or Ayacut (acres)</i>	<i>Proposed annual irrigation (acres)</i>	<i>Proposed annual diversion (T.M.C.)</i>
1	2	3	4	5	6
<b>MADRAS</b>					
15C.3-K.7-Md.1	Madras Canal Project	—	1,183,000	1,783,000	206.3
<b>MAHARASHTRA</b>			<b>C.C.A.</b>		
16C.3-K.1-M.1	Dhom Project	—	87,700	84,500	9.9
17C.3-K.1-M.2	Patkhal Project	—	186,600	153,000	20.0
18C.3-K.1-M.3	Venna Project	7,500	28,300	25,000	3.2
19C.3-K.1-M.4	Urmodi Project	—	29,400	24,200	3.6
20C.3-K.1-M.5	Koyna Hydro-electric Project (Stage III)	60,000	—	—	67.5
21C.3-K.1-M.6	Koya Hydro-electric Project (Stage IV)	400,800	—	—	50.4
22C.3-K.1-M.7	Koyna Irrigation —Stage III	—	56,900	144,600	8.8
23C.3-K.1-M.8	Wang Project	—	48,900	69,500	8.7
24C.3-K.1-M.9	Yeralwadi Project	—	15,900	12,500	1.0
25C.3-K.1-M.10	Patharpunj Project	30,000	8,000	6,000	3.6
26C.3-K.1-M.11	Khujgaon Project	—	158,300	246,800	28.0
27C.3-K.1-M.12	Gothana Project	25,000	2,000	2,000	2.7
28C.3-K.1-M.13	Kadvi Project	132,000	10,000	10,000	24.0
29C.3-K.1-M.14	Kasari Project	367,000	4,000	4,000	48.9
30C.3-K.1-M.15	Phonda Project	70,000	36,000	64,000	12.6
31C.3-K.1-M.16	Kumbhi Project	290,300	5,000	5,000	33.9
32C.3-K.1-M.17	Dudhganga Project	13,000	135,100	190,000	22.1
33C.3-K.1-M.18	Vedganga Project	100,000	17,000	17,000	15.2
34C.3-K.3-M.19	Ajra Project	262,500	8,000	8,000	80.5

TABLE II (Contd.)

<i>Index Number</i>	<i>Name of Scheme</i>	<i>Proposed power installed k.W.</i>	<i>C.C.A. or Ayacut (acres)</i>	<i>Proposed annual irrigation (acres)</i>	<i>Proposed diversion (T.M.C.)</i>
1	2	3	4	5	6
<b>MAHARASHTRA—concl'd.</b>			<b>C.C.A.</b>		
350.3-K.5-M.20	Chaskaman Project	—	106,800	115,000	12.4
360.3-K.5-M.21	Bhima Lift Irrigation Project Stage II	—	223,800	252,000	26.9
370.3-K.5-M.22	Velholi Hydel Scheme	30,000	—	—	4.7
380.3-K.5-M.23	Khadakwasla Project Stage II	—	143,300	85,600	14.0
390.3-K.5-M.24	Poona City water supply and Power Project	13,500	—	—	— 21.1
400.3-K.5-M.25	Kukdi Project Stage II	14,500	455,900	184,600	22.1
410.3-K.5-M.26	Nira Valley Project	15,000	—	249,700	17.0
420.3-K.5-M.27	Nimgaon-Ganguard Tank	—	26,600	19,000	1.7
430.3-K.5-M.28	Sina Project	—	69,600	45,000	3.9
	<b>Total</b>	<b>1,831,100</b>	<b>1,863,100</b>	<b>2,017,000</b>	<b>427.2 142.4</b>
<b>MYSORE</b>			<b>Ayacut</b>		
440.3-K.2-My.1	Bijapur Lift Irrigation Scheme	—	850,000	850,000	120.2
450.3-K.2-My.2	Upper Krishna Project Stage II	—	667,000	667,000	115.0
460.3-K.3-My.3	Ghataprabha Project - Stage III	—	298,000	298,000	34.8
470.3-K.3-My.4	Ghataprabha Project - Stage IV	—	166,000	166,000	37.1
480.3-K.3-My.5	Markandeya Project	—	11,700	11,700	2.8
490.3-K.4-My.6	Bhutevadi Storage Scheme	—	45,000	45,000	7.9
500.3-K.4-My.7	Sattinala Project	—	5,800	5,800	0.5
510.3-K.2-My.8	Don river Project	—	25,000	25,000	2.7
520.3-K.6-My.9	Bhima Lift Irrigation Scheme	—	100,000	100,000	14.3

TABLE II (Contd.)

<i>I n d e x N u m b e r</i>	<i>N a m e o f S c h e m e</i>	<i>Proposed power installed k.W.</i>	<i>C.C.A. or Ayacut (acres)</i>	<i>Proposed annual irrigation (acres)</i>	<i>Proposed annual diversion (T.M.C.)</i>
1	2	3	4	5	6
<b>MYSORE—concl'd.</b>			<b>Ayacut</b>		
53C.3-K.6-My.10	Bhima Irrigation Scheme	—	100,000	100,000	14.3
54C.3-K.6-My.11	Diksanga Scheme	—	6,800	6,800	1.0
55C.3-K.6-My.12	Amarja Project	—	16,500	16,500	2.2
56C.3-K.6-My.13	Kagna Project	—	40,000	40,000	3.0
57C.3-K.6-My.14	Mullamari Project	—	24,200	24,000	3.2
58C.3-K.6-My.15	Chandrapalli Project	—	10,500	10,500	1.5
59C.3-K.6-My.16	Benithora Project	—	60,000	60,000	8.7
60C.3-K.8-My.17	Upper Tungabhadra Project	—	210,000	210,000	31.5
61C.3-K.8-My.18	Tunga Reservoir Project	—	250,000	250,000	37.4
62C.3-K.8-My.19	Extension and remodeling of Bhadra Anicut Channels	—	8,500	13,600	4.8
10C.3-K.8-A.10/My. 20	Tungabhadra High Level Canal Stage II (jointly with Andhra Pradesh)				
63C.3-K.8-My.21	Madag Masur Scheme	—	24,100	24,100	1.9
64C.3-K.8-My.22	Varada Scheme	—	20,000	20,000	3.6
65C.3-K.8-My.23	Dandavathi Reservoir Project	—	8,000	8,000	2.1
<b>Total</b>		—	<b>2,911,100</b>	<b>29,52,200</b>	<b>450.5</b>
<b>Grand Total</b>		<b>2,741,100</b>	<b>10,056,300</b>	<b>12,430,500</b>	<b>2,275.9</b>

878.21  
563.1

Note :—Figures in italics are diversions for power generation only

TABLE III

Particulars of minor schemes included in III Plan but not yet approved for execution

Serial number	Name of scheme	Name of sub-basin	Capacity tanks M.Cft.	Capacity diversion schemes (cusecs)	C.C.A or Ayacut (acres)	Area proposed to be irrigated (acres)
ANDHRA PRADESH					Ayacut	
Hyderabad district						
1.	Kallur Project	K. 6 Lower Bhima			724	724
Nalgonda district						
1.	Chinna Palair	K. 10 Musi			1,000	1,000
Total for Andhra Pradesh					1,724	1,724
MAHARASHTRA					C.C.A.	
Ahmednagar district						
1.	Tank at Kamargaon	K. 5 Upper Bhima	96	20	1,400	1,400
2.	Bandhara at Arangaon	"	—	15	1,200	960
Total					2,600	2,360
Sholapur district						
1.	Tank at Ruljanti	"	67	—	647	487
2.	Tank at Karavali	"	64	—	960	825
3.	Tank at Kumbhaj	"	122	—	2,900	1,472
4.	Tank at Atchkandi (Waki)	"	61	—	2,046	1,100
Total					6,553	3,884
Total for Maharashtra					9,153	6,244
MYSORE					Ayacut	
Districtwise distribution and names of different schemes not yet determined						
Total for Mysore					10,000	10,000
Grand Total					20,877	17,968

TABLE IV

Particulars of minor schemes not included in III Plan

Serial number	Name of Scheme	Name of Sub-basin	Capacity tanks (M.Cft)	Capacity diversion schemes (cusecs)	C.C.A. or Ayacut (acres)	Area proposed to be irrigated (acres)
1	2	3	4	5	6	7
ANDHRA PRADESH					Ayacut	
Hyderabad district						
1.	Chintal Cunta Project (V. Chintal Cunta)	K-6 Lower Bhima	—		700	700
2.	Udandupoor Project (V. Udandupur Tq. Tandur)	„	71		840	840
3.	Allampur Project (V. Allampur Tq. Tandur)	„	78		686	686
4.	Sarpanpalli Project (V. Sarpanpalli Tq. Vikarabad)	„	321		2,522	2,522
5.	Khanapur Project (V. Khanapur)	„	—		1,600	1,600
6.	Kakarvani Anicut	„			1,005	1,005
7.	Anicut across Kagna	„			820	820
8.	Lower Kagna Anicut	„			1,700	1,700
9.	Gazipur Anicut	„			610	610
10.	Project near Erumpalli village in Parsi Taluk	„			1,075	1,075
11.	Tinavaram Project	„			976	976
12.	Nalla Katna	„			590	590
13.	Salarnagar	K.7 Lower Krishna			1,980	1,980
Total					15,104	15,104

**TABLE IV (Contd.)**  
**Particulars of minor Schemes not included in III Plan**

<i>Serial number</i>	<i>Name of Scheme</i>	<i>Name of Sub-basin</i>	<i>Capacity tank (M.Cft.)</i>	<i>Capacity diversion schemes (cuses)</i>	<i>C.O.A. or Ayacut (acres)</i>	<i>Area proposed to be irrigated (acres)</i>
1	2	3	4	5	6	7
<b>Khammam district</b>						
1.	Kunchaparty Anicut	K.12 Muneru	—		400	400
2.	Anicut across Vatti Vagu (V. Malchalma)	„	—		814	814
3.	Chintal cheroo Project (V. Gopal Pet)	„	—		3,525	3,525
4.	Pala Vagu Project (V. Vengapudu)	„	—		850	850
5.	Angathisukattu Project (V. Komally)	„	—		754	754
6.	Maswaram Project (V. Maswaram)	„	—		480	480
7.	Branch of Munneru Project (V. Lingagadipidu)	„	—		735	735
8.	Anicut across Branch of wyra river	„			600	600
9.	Anicut across Vativagu Project	„			2,340	2,840
10.	Anicut across Kattaleru	„			1,850	1,850
11.	Anicut across Vattivagu	„			700	700
	<b>Total</b>				<b>13,048</b>	<b>13,048</b>
<b>Mahboobnagar district</b>						
1.	Donda cheru	K.7 Lower Krishna			566	566
2.	Jeeldartippa Project	„			600	600



TABLE IV

Particulars of minor schemes not included in III Plan

Serial number	Name of Scheme	Name of Sub-basin	Capacity tank (M.Cft.)	Capacity diversion schemes (cusecs)	C.C.A. or Ayacut (acres)	Area proposed to be irrigated (acres)
1	2	3	4	5	6	7
3.	Naddaman Anicut	K.7 Lower Krishna			974	974
4.	Karwanga Anicut	"			272	272
5.	Chandra Vagu Project	"			552	552
6.	Panchgal Project	"			342	342
7.	Narsimlu Vagu Project	"			928	928
8.	Amangal Project	"			811	811
9.	Gundlayal Project	"	—		1,565	1,565
10.	Galapalyar Project	"	—		1,000	1,000
11.	Pathapalam Project	"	—		600	600
12.	Uttandapuram Project	"	—		404	404
13.	Nalla Vagu Project	"	—		612	612
14.	Ghanpur Project	"	33		414	414
15.	Project near Nalamirampalli	"			3,420	3,420
16.	Nallavagu	"			4,250	4,250
17.	Magnoor Project	"	464		4,200	4,200
		<b>Total</b>			<b>21,510</b>	<b>21,510</b>
<b>Medak district</b>						
1.	Shakapur Project (V. Mal-chalma Tq. Zahirabad)	K-6 Lower Bhima	40		393	893
<b>Nalgonda district</b>						
1.	Pedda Vagu Project (V. Brahmanpalli Tq. Deverkonda)	K-7 Lower Krishna	—		614	614

**TABLE IV (Contd)**  
**Particulars of minor schemes not included in III Plan**

<i>Serial number</i>	<i>Name of Scheme</i>	<i>Name of Sub-basin</i>	<i>Capacity tanks (M.Cft.)</i>	<i>Capacity diversion schemes (cusecs)</i>	<i>C.C-A, or Ayacut (acres)</i>	<i>Area proposed to be irrigated (acres)</i>
1	2	3	4	5	6	7
2.	Kongal Vagu Project (V. Palwala Tq. Nalgonda)	K-7 Lower Krisna	—		580	580
3.	Paleru Project (V. Kawalpulam Tq. Suryapet)	K-10 Paleru	—		900	900
4.	Mosangi Project (V. Mosangi Tq. Deverkonda)	K-7 Lower Krishna	—		800	800
5.	Velgupalli vagu Project (V. Valgugalli Tq. Suryapet)	K-11 Paleru	—		400	400
6.	Pisar Vagu Project (V. Yengandla Tq. Malgonda)	K-7 Lower Krishna	—		430	430
7.	Halia Project	„	1176		4,000	6,000
8.	Paluvagi Vagu Project (V. Malivalpalan Tq. Deverkonda)	„	—		830	830
9.	Tippartivagu Project (V. Tiparti Tq. Nalgonda)	„	—		730	730
10.	Elkatta Vagu Project (V. Rathipalli To. Nalgonda)	„	—		327	327
11.	Godapur Vagu Project (V. Godapur Tq. Nalgonda)	„	—		555	555
12.	Branch of Pedda Vagu Project (V. Rayaram Tq. Deverkonda)	„	—		745	745
13.	Aler Project (V. Purlapally Tq. Bhongir)	K-10 Musi	—		358	358

TABLE IV (Contd.)

Particulars of minor schemes not included in III Plan

Serial number	Name of Scheme	Name of Sub-basin	Capacity Tank (M.Cft.)	Capacity diversion schemes (cusecs)	C.C.A. or Ayacut (acres)	Area proposed to be irrigated (acres)
1	2	3	4	5	6	7
14.	Krishnapur Anicut	K-7 Lower Krishna			800	800
15.	Ramaswamikatwa	"			648	648
16.	Paleru Project	K-10 Musi	116		800	800
17.	Elakapallivagu Project	"			850	850
18.	Burugupalli Project	"			700	700
19.	Branch of Peddavagu Project	"			820	820
20.	Adividevalapalli	K-7 Lower Krishna	126		2,000	2,000
		<b>Total</b>			<b>17,887</b>	<b>19,887</b>
<b>Warangal district</b>						
1.	Oatla Project (Oatla)	K-12 Muneru	—		1,256	1,256
2.	Darmarao Pet Project (V. Dharmaraopet)	"	—		413	413
3.	Bhopati Pet Project (V. Bhothipet)	"	—		1,091	1,091
4.	Kasrabada Pumping Scheme	K-7 Lower Krishna			848	848
5.	Anicut across Paleru river	"	—		500	500
6.	Yeluguru Vagu Project	K. 12 Muneru	—		4,964	4,964
	<b>Total</b>				<b>9,072</b>	<b>9,072</b>
	<b>Total for Andhra Pradesh</b>				<b>77,014</b>	<b>79,014</b>
<b>MAHARASHTRA</b>						
<b>Poona district</b>						
1.	Tank at Pandhanwadi	K. 5 Upper Bhima	45	—	1,550	1,165
	<b>Total for Maharashtra</b>				<b>1,550</b>	<b>1,165</b>

TABLE IV (Contd.)

Particulars of minor schemes not included in III Plan

Serial number	Name of Scheme	Name of Sub-basin	Capacity Tank (M.Cft.)	Capacity diversion schemes (cusecs)	C.C.A. or Ayacut (acres)	Area proposed to be irrigated (acres)
1	2	3	4	5	6	7
<b>MYSORE</b>						
	<b>Belgaum district</b>				<i>Ayacut</i>	
1.	Hoskere tank	K. 4	N.A.	—	1,500	1,500
	<b>Bijapur district</b>					
1.	Rangasamudra tank	"	"	—	2,100	2,100
2.	Rakasgi tank	"	"	—	450	450
3.	Chitavadgi tank	K.2 Middle Krishna	"	—	2,100	2,100
4.	Balkundi tank	"	"	—	2,780	2,780
5.	Kohally tank	"	"	—	1,050	1,050
6.	Kochar tank	"	"	—	600	600
7.	Benkandoni tank	"	"	—	1,500	1,500
	<b>Total</b>				<b>10,580</b>	<b>10,580</b>
	<b>Dharwar district</b>					
1.	Majjur tank	K. 8	"	—	1,260	1,260
		Tungabhadra				
	<b>Gulbarga district</b>					
1.	Mudhole Reservoir Project	K.6 Lower Bhima	"	—	2,900	2,900
	<b>Raichur district</b>					
8.	Maski nala Project	K. 8 Tungabhadra	—	N.A.	3,635	3,635
2.	Hire nalla project	"	—	"	3,750	3,750
3.	Hire nala reservoir Project	"	N.A.	—	1,950	1,950
4.	Hattigud stream Project	"	—	N.A.	600	600
5.	Morat stream project	"	—	"	1,470	1,470
	<b>Total</b>				<b>11,405</b>	<b>11,405</b>
	<b>Total for Mysore</b>				<b>27,645</b>	<b>27,645</b>
	<b>Grand total</b>				<b>106,209</b>	<b>107,824</b>

TABLE V

Particulars of small tanks and diversions included in III Plan but not yet approved for execution

Serial number	Name of district	Name of sub-basin	Number of tanks and diversions	C.C.A. or Ayacut (acres)	Area proposed to be irrigated (acres)
1	2	3	4	5	6
<b>ANDHRA PRADESH</b>				<i>Ayacut</i>	
1	Krishna	76% in K. 12 Munera 17% in K. 7 Lower Krishna & 7% in K. 11 Paleru	89	8,547	(8,547)
2	Kurnool	66% in K. 8 Tungabhadra 25% in K. 7 Lower Krishna and 9% in K. 9 Vedavathi	4	1,203	(1,203)
3	Nalgonda	54% in K. 7 Lower Krishna 35% in K. 10 Musi and 11% in K. 11 Paleru	3	722	(722)
<b>Total</b>			<b>96</b>	<b>10,472</b>	<b>10,472</b>
<b>MAHARASHTRA</b>				<i>C.C.A.</i>	
1	Kolhapur	87% in K. 1 Upper Krishna 13% in K. 3 Ghataprabha	1	300	180
2	Osmanabad	54% in K. 5 Upper Bhima 46% in K. 6 Lower Bhima	3	830	790
3	Satara	70% in K. 1 Upper Krishna 30% in K. 5 Upper Bhima	2	600	475
<b>Total</b>			<b>6</b>	<b>1,730</b>	<b>1,445</b>
<b>MYSORE</b>				<i>Ayacut</i>	
District-wise distribution not yet determined					
<b>Total</b>			<b>N.A.</b>	<b>10,000</b>	<b>10,000</b>
<b>Grand Total</b>				<b>22,202</b>	<b>21,917</b>

The percentages in column No. 3 denote percentages of that part of the district named in column 2 which lies in the Krishna basin.

TABLE VI

Particulars of proposed small tanks and diversions not included in III Plan

<i>Serial number</i>	<i>Name of district</i>	<i>Name of sub-basin</i>	<i>Numbe of tanks and diversions</i>	<i>C.C.A. or Ayacut (acres)</i>	<i>Area propos- ed to be irri- gated (acres)</i>
1	2	8	4	5	6
<b>ANDHRA PRADESH</b>				<i>Ayacut</i>	
1	Guntur	K. 7 Lower Krishna	3	724	724
2	Hyderabad	59% in K. 10 Musi; 23% in K. 6 Lower Bhima and 18% in K. 7 Lower Krishna	93	5,673	5,673
3	Khammam	84% in K. 12 Muneru and 16% in K. 11 Paleru	14	1,885	1,885
4	Krishna	76% in K. 12 Muneru; 17% in K. 7 Lower Krishna and 7% in K. 11 Paleru	2	746	746
5	Kurnool	66% in K. 8 Tungabhadra; 25% in K. 7 Lower Krishna and 9% in K. 9 Vedavathi	7	1,587	1,587
6	Mahboobnagar	89% in K. 7 Lower Krishna 7% in K. 8 Tungabhadra 2% each in K. 6 Upper Bhima and K. 10 Musi	84	4,586	4,586
7	Medak	71% in K. 10 Musi and 29% in K. 6 Lower Bhima	2	809	809
8	Nalgonda	54% in K. 7 Lower Krishna; 35% in K. 10 Musi and 11% in K. 11 Paleru	37	3,676	3,676
9	Warangal	68% in K. 12 Muneru; 19% in K. 10 Musi and 13% in K. 11 Paleru	23	1,347	1,347
<b>Total</b>			<b>265</b>	<b>21,033</b>	<b>21,033</b>

TABLE VI (Concl'd.)

Particulars of proposed small tanks and diversions not included in III Plan

<i>Serial number</i>	<i>Name of district</i>	<i>Name of sub-basin</i>	<i>Number of tanks and diversion</i>	<i>C.C.A. or Ayacut (area)</i>	<i>Area proposed to be irrigated (acres)</i>
1	2	3	4	5	6
<b>MAHARASHTRA</b>			<b>C.C.A.</b>		
1	Ahmednagar	K. 5 Upper Bhima	190	80,000	70,000
2	Bhir	K. 5 Upper Bhima	25	9,600	8,000
3	Kolhapur	87% in K. 1 Upper Krishna and 13% in K. 3 Ghataprabha	700	260,000	230,000
4	Osmanabad	54% in K. 5 Upper Bhima and 46% in K. 6 Lower Bhima	28	12,000	10,000
5	Poona	K. 5 Upper Bhima	400	150,000	125,000
6	Sangli	45% in K. 1 Upper Krishna 40% in K. 5 Upper Bhima and 5% in K. 2 Middle Krishna	146	63,000	52,500
7	Satara	70% in K. 1 Upper Krishna and 30% in K. 5 Upper Bhima	480	196,750	170,000
8	Sholapur	90% in K. 5 Upper Bhima 10% in K. 6 Lower Bhima	230	108,000	90,000
<b>Total</b>			<b>2,199</b>	<b>879,350</b>	<b>755,500</b>

**MYSORE**

13 lakhs acres are to be developed in the minor valleys of Krishna basin in future including schemes that would irrigate more than 500 acres.

*Note:—The percentages in column 3 denote percentages of that part of the district named in column 2 which lies in the Krishna basin.*

TABLE VII

Abstract of minor schemes, small tanks and diversions included in III Plan but not yet approved for execution

Name of district	Minor schemes as per Table III			Small tanks & diversions as per Table V			Total		Duty (acres per M. Cft.)	Proposed annual diversion T.M.C.
	Number	C.C.A. or Ayacut	Proposed annual irrigation	Number	C.C.A. or Ayacut	Proposed annual irrigation	C.C.A. or Ayacut	Proposed annual irrigation		
		.....acres.....			.....acres.....					
<b>ANDHRA PRADESH</b>		<i>Ayacut</i>			<i>Ayacut</i>			<i>Ayacut</i>		
Hyderabad	1	724	724	—	—	—	724	724	6	0.12
Krishna	—	—	—	89	8,547	8,547	8,547	8,547	6	1.42
Kurnool	—	—	—	4	1,203	1,203	1,203	1,203	5	0.24
Nalgonda	1	1,000	1,000	3	722	722	1,722	1,722	6	0.28
<b>Total</b>	<b>2</b>	<b>1,724</b>	<b>1,724</b>	<b>96</b>	<b>10,472</b>	<b>10,472</b>	<b>12,196</b>	<b>12,196</b>		<b>2.06</b>

Note :—The duty (acres per M. Cft.) is based on Table IX and the assumption that irrigation in Telengana is generally 80% Abi and 20% Tabi. The same figure has been assumed for Krishna district also

<b>MAHARASHTRA</b>		C.C.A.			C.C.A.			C.C.A.		
Ahmednagar	2	2,600	2,360	—	—	—	2,600	2,360	17.5	0.13
Kolhapur	—	—	—	1	300	180	300	180	15	0.01
Osmanabad	—	—	—	3	830	790	830	790	25	0.03
Satara	—	—	—	2	600	475	600	475	15	0.03
Sholapur	4	6,553	3,884	—	—	—	6,553	3,884	16.25	0.24
<b>Total</b>	<b>6</b>	<b>9,153</b>	<b>6,244</b>	<b>6</b>	<b>1,730</b>	<b>1,445</b>	<b>10,883</b>	<b>7,689</b>		<b>0.44</b>
		<i>Ayacut</i>			<i>Ayacut</i>			<i>Ayacut</i>		
<b>MYSORE</b>	N.A.	10,000	10,000	N.A.	10,000	10,000	20,000	20,000	(7)	2.86

Note:— (i) District-wise distribution not yet determined

(ii) The Duty (acres per M. Cft.) has been assumed as 7, average of all the districts

<b>Grand Total</b>		<b>20,877</b>	<b>17,968</b>		<b>22,202</b>	<b>21,917</b>	<b>43,079</b>	<b>39,885</b>		<b>5.36</b>
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TABLE VIII

Abstract of minor schemes, small tanks and diversions not included in IIP Ian

State/District	Minor schemes as per Table IV			Small tanks and diversions as per Table IV			Total		Duty (acres per M. Cft.)	Proposed annual diversion (T.M.C.)
	Number	C.C.A. or Ayacut	Proposed annual irrigation	Number	C.C.A. or Ayacut	Proposed annual irrigation	C.C.A. or Ayacut	Proposed annual irrigation		
1	2	3	4	5	6	7	8	9	10	11

.....acres.....			.....acres.....			.....acres.....				
ANDHRA PRADESH	Ayacut			Ayacut			Ayacut			
Guntur	—	—	—	3	724	724	724	724	6	0.16
Hyderabad	13	15,104	15,104	93	5,673	5,673	20,777	20,777	6	3.46
Khammam	11	13,048	13,048	14	1,385	1,885	14,933	14,933	6	2.49
Krishna	—	—	—	2	746	746	746	746	6	0.12
Kurnool	—	—	—	7	1,587	1,587	1,587	1,587	5	0.32
Mahboobnagar	17	21,510	21,510	84	4,586	4,586	26,096	26,096	6	4.35
Medak	1	393	393	2	809	809	1,202	1,202	6	0.20
Nalgonda	20	17,887	19,887	37	3,676	3,676	21,563	23,563	6	3.93
Warangal	6	9,072	9,072	23	1,347	1,347	10,419	10,419	6	1.73
<b>Total</b>	<b>68</b>	<b>77,014</b>	<b>79,014</b>	<b>265</b>	<b>21,033</b>	<b>21,033</b>	<b>98,047</b>	<b>100,047</b>		<b>16.76</b>

Note :—The duty (acres per M.Cft.) is based on Table IX and the assumption that irrigation in Telengana is generally 80% Abi and 20% Tabi. The same figure has been assumed for Krishna and Guntur districts also.

MAHARASHTRA	C.O.A.			C.C.A.			C.C.A.				
Ahmednagar	—	—	—	190	80,000	70,000	80,000	70,000	17.5	4.00	
Bhir	—	—	—	25	9,600	8,000	9,600	8,000	25	0.32	
Kolhapur	—	—	—	700	260,000	230,000	260,000	230,000	15	15.33	
Osmanabad	—	—	—	28	12,000	10,000	12,000	10,000	25	0.40	
Poona	1	1,550	1,165	400	150,000	125,000	151,550	126,165	15	8.41	
Sangli	—	—	—	146	63,000	52,500	63,000	52,500	16.25	3.23	
Satara	—	—	—	480	196,750	170,000	196,750	170,000	15	11.33	
Sholapur	—	—	—	230	108,000	90,000	108,000	90,000	16.25	5.54	
Total	1	1,550	1,165	2,199	879,350	755,500	880,900	756,665		48.56	

MYSORE		<i>Ayacut</i>		<i>Ayacut</i>		<i>Ayacut</i>	
Belgaum	1	1,500	1,500				
Bijapur	7	10,580	10,580				
Dharwar	1	1,260	1,260				
Gulbarga	1	2,900	2,900				
Raichur	5	11,405	11,405				
				(District-wise distribution has not yet been determined)			
Total	15	27,645	27,645	N.A.	1,272,355	1,272,355 (1,300,000)	1,300,000 (7) 185.71

Note :—(i) The Ayacut in column 8 has been assumed to be the same as proposed annual irrigation

(ii) The duty (acres per M.Cft.) has been assumed to be 7, average of all the districts

<b>Grand Total</b>	<b>84</b>	<b>106,824</b>	<b>107,824</b>	<b>N.A.</b>	<b>2,172,738</b>	<b>2,048,888</b>	<b>2,278,947</b>	<b>2,156,712</b>		<b>251.03</b>
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**TABLE IX**  
**Crop pattern and duty, district-wise**

<i>Serial number</i>	<i>State district</i>	<i>Average annual rainfall (inches)</i>	<i>Proposed crop pattern</i>	<i>Proposed Duty (acres per M. Of.)</i>
<b>ANDHRA PRADESH</b>				
1.	Guntur	32.5	Abi	5
2.	Hyderabad	27.6	Abi & Tabi	6.67 for Abi; 3.33 for Tabi
3.	Khammam	41.3	"	" "
4.	Krishna	37.4	Abi	5
5.	Kurnool	26.6	Abi	5
6.	Mahboobnagar	27.6	Abi & Tabi	6.67 for Abi and 3.33 for Tabi
7.	Medak	33.5	"	"
8.	Nalgonda	28.5	"	"
9.	Warangal	41.3	"	"
<b>MADRAS</b>				
1.	Chingleput			
2.	South Arcot			
<b>MAHARASHTRA</b>				
1.	Anmednagar	25.6	Kharif 50% Rabi 50%	17.5
2.	Bhir	27.6	Kharif 50% Rabi 50%	25
3.	Kolhapur	78.7	Rabi 100%	15
4.	Osmanabad	33.5	Kharif 50% Rabi 50	25
5.	Poona	51.2	100% Rabi	15
6.	Sangli (South Satara)	29.5	Kharif 25% Rabi 75%	16.25
7.	Satara	49.2	100% Rabi	15
8.	Sholapur	23.6	Kharif 25% Rabi 75%	16.25
<b>MYSORE</b>				
1.	Belgaum	39.4	Mixed crops, paddy and sugarcane west zone and dry crops in east zone	10
2.	Bijapur	23.6	Dry crops like jowar, wheat and cotton	12
3.	Dharwar	27.6	Mixed crops	7
4.	Gulbarga	26.6	Mostly paddy	4
5.	Raichur	23.6	Paddy and sugarcane	4



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